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THE PHILOSOPHICAL REVIEW

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JAMES EDWIN CREIGHTON.

1861–1924.

JAMES EDWIN CREIGHTON, Sage Professor of Logic and Metaphysics in Cornell University, and responsible Editor of THE PHILOSOPHICAL REVIEW since 1893, died at his home in Ithaca, N. Y., October 8, 1924.

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THE PHILOSOPHICAL REVIEW.

PHILOSOPHY IN FRANCE, 1922–1923.[1]

I.

INTEREST in the history of thought is constant, and is apparently even on the increase. This fact is hardly due to a weariness with thinking or to distrust of human reason, as might have been supposed on the morrow of the war. It seems rather to indicate the influence of ideas analogous to those which were formerly dominant, in the first half of the nineteenth century, and which later yielded to conceptions less favorable to this sort of studies. I refer to the conviction that reason learns to know itself only through its history, and that, far from seeking to establish itself from the ground up in the non-temporal, philosophy can throw light on its problems and understand its own categories only by connecting them with all their prior development. It was, moreover, the example of the positive sciences which strongly served for some fifty years to popularize this ideal of eternal truths, alien to all change. But today these sciences themselves seek less and less to attain the immutable and to place themselves beyond change. Enlightened in this by philosophy, they have become penetrated by a critical spirit more akin to evolutionism than to Kantian formalism. They regard their movement as a progressive development of ideas, and turn toward their history. And by a very natural reaction philosophy does the same.

Many of these historical works are theses for the *doctorat*

[1] Translated from the French by Professor R. A. Tsanoff.

ès-lettres.[1] It should not be forgotten that in France the standard of work presented for this degree, especially in Paris, is altogether different from that in other countries. These theses are never small brochures comparable to review articles, but works of two or three hundred pages octavo, or sometimes double that, which are not "*admis à soutenance*" unless they contribute something new, or at least manifest very satisfactory formal merits of composition, of personal research and erudition. This applies to the so-called *doctorat d'Université* as well as to the *doctorat d'État*, although the former is a little easier, since for the latter two theses are required instead of one, as well as the prior attainment of the degree of *licencié*. Furthermore, these theses are not presented by very young people, but generally by men of thirty to forty, some of whom are already professors in lycées or even in charge of university courses.

I do not think it out of place to insist on these details, for there is often confusion, and I have seen foreign students somewhat perturbed because the Sorbonne would not accept as theses works which they had believed quite fit for obtaining the doctorate. In reality that which corresponds in our Faculties of Letters[2] to the average type of doctor's thesis in other countries is what we call the *diplôme d'études universitaires* or the *diplôme d'études supérieures;* and the papers written for these examinations are in general not published.[3] As to doctors' theses properly so-called, one can get an idea of their importance and of their grade by reading, for example, among the historical works of these last two years, both the *Saint-Cyran* of M. Jean Laporte and also his *Les Vérités de la grâce dans la doctrine de Port-Royal*,[4]

[1] To be sure, the converse is not true: a doctor's thesis is not necessarily an historical work. P. Janet's *L'Automatisme psychologique*, G. Dumas' *La Joie et la Tristesse*, Durkheim's *La Division du Travail*, Fauconnet's *La Responsabilité* were doctors' theses.

[2] It is different with doctors' theses in Medicine, Science, and Law, about which I cannot here enter into details, except to say that all have their special regulations.

[3] One of these papers, however, of the year 1914, was published in 1923 in the *Bibliothèque de la Faculté des Lettres* because of its exceptional merit. It is entitled *Les idées morales de Diderot* (aux Presses Universitaires). Its author, Pierre Hermand, former student of the École Normale Supérieure, became an aviation officer during the war, and was killed in an air-combat in 1916.

[4] Two volumes, aux Presses Universitaires.

the latter being a work of profound and intelligent erudition which supports his sympathy for Jansenist thought; *La notion de force dans le système d'Aristote*, by M. Carteron,[1] which is a learned contribution to the history of this concept as well as to the history of the philosophical doctrine in which he studies it; the *Duns Scot* of M. Bernard Landry and his study of *La notion d'analogie chez St. Bonaventure et St. Thomas d'Aquin;*[2] the *Boscovich* of M. Nedelcovitch;[3] and many others which it is impossible to enumerate here.

These are university works "*ad doctoris gradum capessendum*," as they used to say. But recent years have not been less fertile in works by older masters. M. Brunschvicg has brought together in *Spinoza et ses contemporains*[4] (Descartes, Pascal, Malebranche, Fénelon, Leibniz) a series of studies in which is to be noted, along with the extent of his learning, his particular gift for ingenious and suggestive comparison.—M. Xavier Léon, the editor of the *Revue de Métaphysique*, whose *Philosophie de Fichte* is still remembered, has published the first volume of a monumental work, *Fichte et son temps*.[5] In the greatest detail and most vivid manner he brings to life again the career and the philosophical development of the great German patriot and thinker, to whom he has long been attached not only as a scholar but almost as a disciple. Democratic spirit, radical moralism, a steady passion for reason and for freedom, combine to pervade with a strong spiritual unity the external variations of his doctrines: all this M. Xavier Léon brings out powerfully in his author, basing his interpretation upon a mass of material, some now edited for the first time, the fruit of more than fifteen years of labor. Would that we had for all the great philosophers such a museum of documents, and one as well ordered!

M. Jacques Chevalier, of the University of Grenoble, has given us, in his *Pascal*,[6] a sympathetic and learned study of this

[1] J. Vrin.—See by the same author "L'idée de force mécanique dans le système de Descartes," *Revue philosophique*, 1922, II.

[2] Two volumes, Alcan.

[3] "La Vie Universitaire."

[4] Alcan.

[5] Armand Colin, with a portrait and unpublished documents. The second volume is in press.

[6] Plon-Nourrit.

great and strange spirit, whose third centenary, 1923, has just been celebrated. He also contributed, along with MM. Maurice Blondel, Brunschvicg, Höffding, and J. Laporte, and Professor De Unamuno, to the special number published by the *Revue de Métaphysique* on this occasion.[1]—To M. Maurice Blondel we owe likewise a little book on *Ollé Laprune, l'achèvement et l'avenir de son oeuvre*,[2] which contains more moral biography than philosophy, but which brings to life in an interesting manner the figure of an amiable, cultured, pious man who, about 1880, introduced the ideas of Newman to France in his book *La Certitude morale*.—M. Robert Bouvier has published a serious and solid study, *La pensée d'Ernst Mach*,[3] an essay in intellectual biography and criticism. His exposition is extended, methodical, and richly documented; and the discussion reveals individual and vigorous thinking, with a clear perception of the wavering and the clash of ideas.—Finally, *La légende socratique et les sources de Platon*, by Professor Dupréel, of the University of Brussels,[4] is a considerable and paradoxical work, but its paradox is clever and tempting. Its guiding idea is that "the doctrine, and the life and death of Socrates are only a literary fiction," and that Plato, at least during the greater part of his career, was first of all a great artist, gathering freely and without any dogmatic concern the materials with which his marvelous phantasy played. "The personality of a sincere convinced philosopher, devoting himself his whole life long to the establishment of a definitive system: where is it to be found among the Socratics? In vain will you look for him in the young or in the mature Plato. Nor is it certain that you will find him in Plato growing old; and certainly you may deny him to all the others." Perhaps this is saying a great deal; yet we should not forget that Brochard, the excellent critic of Greek philosophy, had already shown this to be the case as regards the *Symposium*, this alleged monument of a metaphysic of love being at bottom but an amusing collection of parodies.

[1] In this number is also republished a fragment of "Filleau de la Chaise," and an article by Frederic Rauh, which has become very rare, on "La Philosophie de Pascal."

[2] Bloud et Gay.

[3] Librairie "Au Velin d'or," Paris.

[4] Robert Sand, Brussels.

In the field of manuals and textbooks, there is no lack of interesting books that one may cite. First of all we may mention *La pensée grecque, et les origines de l'Esprit scientifique*, by Professor Léon Robin of the Sorbonne.[1] This is a complete history of Greek philosophy, assimilating all the fruits of modern scholarship, closely following the texts (as was to be expected from the author of *Les Idées et les Nombres dans la philosophie de Platon*), but sparing his reader this time discussions of details and critical notes in order to concentrate on the best attained results. An analytical bibliography, select and yet quite full, completes this very useful manual.—M. Gilson, also a professor at the Sorbonne, is a specialist in medieval philosophy; and in two small volumes, of about 160 pages each, he has drawn an accurate, instructive, and full picture of *La philosophie au Moyen-Age*.[2]—M. Masson-Oursel, acting-professor in the Faculty of Letters and in the École des Hautes Études religieuses, has boldly essayed in his *Esquisse d'une histoire de la philosophie indienne*[3] to sketch in one volume of moderate size the fundamental aspects of Indian thought. One should read, in connection with this work, his study of *La philosophie comparée*,[4] in which its guiding motives are brought out.—Let us mention finally a volume on *Aristote* by M. Ch. Lalo, and a study by M. R. Lafon of *Les Stoïciens*,[5] for the use of students and classes in philosophy.

Intermediary between the history of philosophy and philosophy properly so-called, are works by M. Emmanuel Leroux, M. René Berthelot, and M. Albert Thibaudet, which bear on closely related questions.

The first has for its title *Le pragmatisme anglais et américain, étude historique et critique*,[6] and is a work of much appreciated

[1] Published in the *Bibliothèque de synthèse historique*, Librairie "La Renaissance du Livre."

[2] Two volumes, Payot. M. Gilson has also published a new edition, revised, corrected and augmented, of his book on Thomism. It is published by the Librairie Vrin, which has just reprinted the celebrated work of Brochard on the Greek Sceptics, long out of print.

[3] Librairie orientale, Geuthner.

[4] Aux Presses Universitaires.

[5] Two volumes, of 160 and 180 pages, Paul Mellotée.

[6] Alcan.—M. Emmanuel Leroux is *Maître de conferences* at the University of Rennes. This work was his doctor's thesis at the Sorbonne before being published by him in the *Bibliothèque de philosophie contemporaine*.

subtlety and distinction. It presents, as if grouped in a painting, four portraits, with William James in the center, and, arranged around this central figure, those of C. S. Peirce, Mr. John Dewey, and Mr. F. C. S. Schiller. After having examined the historical starting-point, the original form, and the evolution of their doctrines, M. Emmanuel Leroux devotes the last part of his book to the "value of pragmatism." His very intelligent critique aims above all to strip pragmatism of its brilliant paradoxes in order to bring out the more modest but solid truths which it has introduced into the general spirit of contemporary philosophy. The book ends with a very full bibliography, carefully classified and analyzed, which compensates for the almost exclusive place given in the body of the book to the great protagonists. M. Leroux's work thus appears to be a very useful manual as well as a personal philosophical study.

The second of these works concerns *Le pragmatisme religieux chez William James et chez les catholiques modernistes*.[1] It is a rich and penetrating analysis of all sorts of spiritual currents that have blended in the thought of James, and the disparate residues which they have left in it; but the heart of his study is the theological aspect of pragmatism, its connection with traditional religion on the one hand, and with the sentiment of spiritual presences on the other. But M. Berthelot does not value history for its own sake, and never confines himself to it; he judges, and not rarely is his judgment severe. His rigorous and well-ordered rationalism denounces methodically and point by point the equivocations and the contradictions; and beyond James, he strikes at the whole school, or, to put it better, at the whole movement of religiosity which is connected with him, and of which celebrated samples may be found in Wells' *First and Last Things* and *God, the Invisible King*. He then turns against Catholic modernism, especially against Father Tyrrell, whose thought and development he studies in great detail. Around the latter appear the figures of Newman, of Baron Von Hügel—"the Père Mersenne of Modernism"—of Edouard Le Roy, and even of Maurice Blondel, a little apart from the storm. Against

[1] Alcan.—This is the third and last volume of his work, *Un romantisme utilitaire*, of which the former volumes dealt with Nietzsche, Poincaré and Bergson.

this entire movement M. Berthelot brings the same condemnation as against American pragmatism: ambiguity and instability of thought. Just as Sainte-Beuve, without being a Christian, judged the condemnation of Jansenism in the name of the fundamental principles of the Church as natural and logical, so M. René Berthelot, a rationalist himself, and just because he is a rationalist, admits that pure Catholicism is indeed expressed in the Encyclical *Pascendi:* for him logic is on the Pope's side; but, be it well understood, only logic, not wisdom. In his thought (as in the thought of his illustrious father, whose tradition he firmly continues) truth is to be found only in the purely scientific way pointed out by Cartesianism, which avoids the supernatural, which seeks to reduce physics to mechanics and biology to chemistry, and which is today beginning to absorb social facts within its mighty methods of demonstration. All the rest is for him but illusion or—if one would give it a more honorable name—poetry.

This view is, on the contrary, judged to be too narrow by M. Albert Thibaudet, in another work of the same character, but of quite opposite tendency, entitled *Le Bergsonisme.*[1] M. Thibaudet is not a professional philosopher. He began as an historian, and is at present one of our best known literary critics. But like all the good students of our lycées, he has studied philosophy quite extensively. Besides, his is a broad, comprehensive mind, remarkably gifted for perceiving the import and implications of ideas (and therein is he a critic), and for illustrating them by original examples or ingenious comparisons. His *Bergsonisme* is not merely an exposition and commentary of Bergson's ideas: it is an extension of them in various directions. This does not mean that the author is a disciple of Bergson. When he inquires, for instance, what ethics one could extract from Bergsonism, he does not take it merely at its face value, but sketches several possible constructions; he develops the philosophy objectively and without subscribing to it, as an independent spectator of contemporary philosophical history. "A thesis may be explained," Leibniz said, "so as to bring out its meaning and its power, without raising the question of its truth

[1] Two vols., published by the *Nouvelle Revue Française.*

or proof." It is thus that Ravaisson was pleased to complete in various ways the antique group of which, according to him, the Venus of Milo was a part. For M. Thibaudet, who in this respect is still a Leibnizian, Bergsonism is true in what it has taught us to see: liberty, the *élan vital*, the dynamic scheme of thought; but it would become false were one to oppose it to prior philosophies as one doctrine is opposed to another. The true Plato has his Bergsonian aspect; Bergsonism, completely developed according to its own principles, would rejoin Plato as participant in eternal values. The critic's rôle, in the author's conception, is to outline the common movement of philosophy rather than that of individuals, to "sympathize with the *élan* which creates creators rather than with the *élan* of creators, or rather to go from one to the other, integrating the two as astronomical calculus compounds movements of rotation and translation."

II.

Works of contemporary history of philosophy, like those by M. René Berthelot and M. Thibaudet, lead us almost without break to works of strictly general philosophy and epistemology; I mean epistemology in the etymological sense of the word, which is also the most usual in French: the philosophy of science, and not theory of knowledge, interest in which always remains somewhat academic, and is even on the wane in education.

The year 1922 was marked by the visit to Paris of M. Einstein, welcomed with a warmth of admiration by the general public, which by the way was little capable of understanding his theories and often confused them with the relativism of the sceptics or of the critics of science. Wherever he lectured, at the Sorbonne, at the Collège de France, the halls were too small for the crowds seeking admission, and the organizers of meetings were besieged with demands which they could not satisfy. In the flood of works provoked by this infatuation (works of very unequal value, the authors of which often accused each other of distorting the doctrine they pretended to expound), a special place is due to the psychological and philosophical reflections of M. Bergson, outlined in M. Einstein's presence before the Société de philosophie

in April 1922,[1] and developed in a small book, *Durée et Simultanéité*,[2] promptly followed by a second largely augmented edition. The chief question here, of course, is to know what sort of *reality* should be accorded to the various opposed observers who disagree in their measurement of time. M. Bergson, in all cases in which this paradox is met, would consider only one at a time as real. He holds that if one examines term by term the formulas of Lorentz, inquiring of each to what concrete reality, to what perceived or perceptible thing these terms correspond, one arrives at an unexpected result: "Einstein's theses not only do not seem to contradict, but they confirm, and offer the beginning of a proof for the natural belief of men in a unique and universal time."—I should be tempted to attenuate that in this formula which seems so strongly objective. For M. Bergson, as to that, places himself at the point of view of the Einsteinians. These, and M. Langevin in particular, have always been inclined to present the doctrine under its most paradoxical aspect; and perhaps on that account they have somewhat exaggerated the attitude of their predecessors. Almost all the expositions of "Relativity" suppose that all prior thought, original or critical, was dominated by the heavy realism of Newton, conceiving of space and time, if not as a divine sensorium (which Leibniz discussed with Clarke), at least as homogeneous media having their own existence, in which our sensations distribute themselves as birds in the air or fishes in the sea. Perhaps some savants have thought in this manner; there may have been among them some thinkers untouched by the influence of Poincaré or of the pragmatists. But neither the philosophers nor common sense have, I believe, adhered to this somewhat naïve interpretation. To speak only of the *milieu* best known to me, the teaching of

[1] *Bulletin de la Société Française de Philosophie*, July, 1922. See in the same issue the penetrating remarks of M. Meyerson—to which by the way M. Einstein has subscribed in explicit if not ardent terms: 1. on the irreversibility of time and its irreducibility to a pure dimension of space, in the theory of relativity; 2. on the differences which separate the epistemological theory of Mach from this one. *La Revue philosophique* also devoted to 'relativity' a special number, July, 1922. Let us mention further *En marge de Curie, de Carnot et d'Einstein*, by M. Louis Rougier, published by Chiron. Perhaps the most interesting part of this work is the study of Curie's principle of symmetry, which has not so far received all the attention it deserves from the philosophical point of view.

[2] Alcan.

philosophy at the Sorbonne has been permeated, for the last fifteen years at least, by the idea that the so-called 'rational principles,' and the forms or categories enveloping them, are to a large extent the result of a slow elaboration which allows both for adaptation to experience and at the same time for a characteristic activity of the mind, more or less definite in its orientation.[1] As regards *time*, in particular, it has long since been demonstrated that the human mind proceeds from an elementary idea of duration and of change, a primitive datum in which are intimately combined the experience of change and that of permanence, and that, under the influence of social life,[2] there emerges the idea, a little vague at first but growing more and more distinct, of a chronology and a 'horology' valid for a group of conscious beings, in which events can be determined approximately in a common manner. This determination is the very opposite of an absolute time: to begin with, owing to this characteristic of approximateness, so evident in antiquity, and even in our time among those who are not forced by scientific, industrial or administrative necessity to live with their watches in their hands; and owing to this further fact, that the community is limited to a group and that public sentiment is aware of this limitation regarding its time, just as the henotheist who worships his one God admits without objection that there are other gods. The Greek finds it natural that the Oriental's time should follow a rhythm different from his; and even in our own days, before the definite establishment of the meridian, how many people regarded French

[1] The author of this article gave at the Sorbonne, in 1909–1910, a public course devoted specially to this question, in which he depended not only on his own work of 1899 concerning *Evolution and Dissolution*, but also on the works of our lamented colleague Gaston Milhaud, whose well-known *Certitude Logique* dates from 1894, and who was called to the Sorbonne in 1909. MM. Brunschvicg, Delacroix, and Rey are, with certain *nuances*, of the same point of view. M. Brunschvicg's works, in particular his *Étapes de la philosophie mathématique* (1912) and his paper on "Les fonctions de la Raison" (*Bulletin de la Société Française de philosophie*, June, 1910) when the doctrines of Einstein were not yet discussed, are very characteristic documents. For his *Causalité physique*, see below. An analogous idea is brought out in the important works of M. Meyerson, *Identité et réalité* (1908), and *L'explication dans les Sciences* (1921).

[2] This idea of social life can be variously understood: for society in so far as it is an *organism* differs much from society as a *community*. But here this distinction is secondary.

time and English time as we regard francs and shillings, namely as a correspondence in the large, while all goes well, but a correspondence which is always subject to small fluctuations, and which may occasionally be gravely upset. It is the historians, the astronomers, the physicists who have *made an effort* to unify the manifold times, who have set this up as an ideal, and have thus been led to affirm the reality of this unification, much as the logical demand to connect the facts of experience has been hypostasized into the categorical affirmation of universal determinism, and the democratic norm into the famous declaration that all men *are* born equal. But it is well known at heart that so far there has been only an *effort to advance* in this direction. The theory of relativity does not, to the philosophers, reveal multiplicity, but rather, first, an *obstacle* to the progress of unification, and second (through the theory of a single spatio-temporal universe, to be read differently by different observers) a means of immediately resuming this advance towards identity. M. Bergson's interpretation is another line of defense against the same difficulty; but it is also the defense of another territory. The notion of *reality* comes, in effect, from two quite different sources, and according as one or the other predominates, it assumes an opposite character. Sometimes the real is defined chiefly in terms of the actual, the given, the immediate; sometimes in terms of the logical and the universal. Each form of reality must needs make place for the 'uninvited guest' introduced by physical proofs. Is it not, then, natural that, from these two points of view, the contents of this notion of reality are differently handled and that, in this way, each of the two systems considers the other phantasmal?

Another work of great philosophical importance, also touching on the same questions, is M. Brunschvicg's *L'Expérience humaine et la causalité physique*. Its basis is essentially historical, but it is a 'philosophy of history' applied to the succession of ideas. The beliefs of savages, the Aristotelian idea of causality, the ideas of Bacon, Descartes, Galileo, Newton, Kant, of the physicists of the XIXth century, mark the successive steps of progress the curve of which he endeavors to draw, in order to extend it

further by means of reflection.[1] This book, like the *Étapes* above mentioned, is permeated with the idea of the plasticity of reason: "This conclusion," we read, "so clearly disclosed, thanks to theories of relativity, marks a phase in the evolution of idealism" (p. 610). Perhaps this is overstating it, for we have shown above that philosophy and the methodology of the sciences, at least in France, have for a long time most consciously proceeded in this direction; the expressions "*raison constituante*" and "*raison constituée*" date from the year 1909,[2] and M. Brunschvicg himself recalls all that the philosophers have long since learned in this matter from non-Euclidean geometries. He does it with all the more right since he himself made mention, more than twenty-five years ago, in his *Modalité du jugement*, of a gradual organization of the forms of interiority and exteriority, that is, of time and space. So, unquestionably, although 'relativity' has come to strengthen in certain respects this current of ideas, it cannot be regarded as their source, nor even as a decisively important tributary.

It should be well remarked, all the same, that this belief in the mutability of reason, considered in its formulas or in its concepts, does not at all weaken rationalism, that is to say the confidence in science, and in the right of reason thus 'constituted' to govern the thought and the conduct of men. Proof of this may be found in almost all the philosophers whose names have been cited in the preceding pages. We may cite as an instance M. Goblot's new volume *Le système des Sciences*,[3] which brings together again the essential ideas of his earlier works, *La classification des sciences* and the *Traité de Logique* which have been discussed in these pages in some detail.[4] The last chapter, entitled precisely "le rationalisme," vigorously justifies the transition from reflection to action, and could almost serve as an introduction to recent French works which we have to report in the fields of morals and sociology.

[1] We shall see later a similar method applied by M. Davy in morals, to the problem of respect for contracts, and by M. Bayet to the problem of suicide; this is a rather remarkable case of 'parallelism of normative sciences.'

[2] I proposed them, for the first time, I believe, in the above-mentioned course on *La Raison et les principes rationnels*.

[3] Armand Colin.

[4] See THE PHILOSOPHICAL REVIEW, vol. XXVIII, September, 1919, pp. 444–446.

III.

There is great activity in these fields, and there have been during the last two years numerous works of first rank.

La Mentalité primitive, by M. Lévy-Bruhl,[1] follows his work on *Les fonctions mentales dans les Sociétés inférieures;* he makes use of the same documents and methods of interpretation to throw a curious light on certain moral reactions of savages considered up till now as unintelligible: for it has often been remarked (and this is one of the paradoxes of which there is no lack in philosophy) that the very precision with which M. Lévy-Bruhl distinguishes our mentality from that of 'primitive' men enables us to *comprehend*, that is to say to assimilate to ourselves by further penetrating into the facts, that which we could not possibly have assimilated had we retained the older views. According as one passes from one point of view to the other, one may consider M. Lévy-Bruhl's book under two aspects, like Necker's cube or Schröder's staircase: now as a demonstration of the radical diversity of the human mind, and then again as a document in favor of its unity. The author himself, moreover, does not aim to impose on us either one of these two attitudes; he observes and he analyzes learnedly, and his intention would be quite well represented by the motto which Ranke wished to give to history: to reconstitute things "precisely as they have taken place."

M. Bouglé, M. Davy, M. Albert Bayet, on the contrary, while they are likewise sociologists, emphasize more the normative idea. In exploring earlier forms of moral beliefs, they aim not only to describe but also to help us pass judgment. M. Bouglé, Professor at the Sorbonne, in his *Leçons de sociologie sur l'évolution des valeurs*,[2] analyzes the notion of value, distinguishes its various kinds, and brings out their convergence. This convergence is facilitated by what he calls "*polytélisme*," that is, the possibility of the same means serving different ends and thus acquiring a common value for different persons, each of whom however retains his own views. Quite decided himself in matters of politics and religion (or rather irreligion), he none the less

[1] Alcan.

[2] Armand Colin.—On this interesting work, which I cannot expound or discuss further here, see *Revue philosophique*, 1924, I.

perceives, and, in many a passage, expounds with vigor, the superiority of that which unites citizens or peoples over that which estranges them. And perhaps this accord is, as Plato would have it, the most categorical and the most fundamental of values. M. Bouglé does not say so, and I do not wish to make him say it. Yet it can at least be stated that this hypothesis would be nowise irreconcilable with his entire analysis, nor even with his personal preferences; for does he not value in democracy the progress of equality, the assimilation of the citizens to a standard; and, in rationalism, the *unicité* of science in which minds are in accord, in opposition to the divergence of beliefs by which minds are estranged?

M. Albert Bayet, Professor at the Lycée Louis-le-Grand, has taken up the moral problem of *Suicide*, adopting Durkheim's definition but following quite a different method.[1] It is by the history of moral judgments relative to voluntary death that he would throw light on our present judgment, and be rid of the usual arguments of moralists, which seem to him to lack demonstrative validity. His 'philosophy of history' is that, regarding the question of suicide, only two systems prevail: one is that of 'absolute interdiction,' which has its origin and its grounds in Roman customs and not, as is ordinarily believed, in Christianity, on which, on the contrary, it was imposed but slowly and in so far only as it summed up the heritage of the ancient State; the other system is that of 'graded morality,' which does not condemn suicide on principle and in accordance with a universal rule, but only in so far as this act, in itself neutral, entails an extrinsic moral judgment by its causes or by its effects. The progress of this 'graded morality' along with the general march of civilization justifies the spirit of tolerance, the admission of extenuating circumstances, or even the relative approval which suicide sometimes obtains from the public conscience.

M. G. Davy is Dean of the Faculty of Letters at Dijon, and one of the four or five men now at the head of French sociology.

[1] *Le Suicide et la Morale*, Alcan. Durkheim's definition, in accordance with one of his *règles de la methode sociologique*, posits that one should designate by one single term, 'suicide,' and comprehend within one study, all the cases of an individual's death, whatever the motives, which result from an act performed by the individual with the knowledge that it will lead to that effect.

His book, *La foi jurée*,[1] is dedicated to M. Lévy-Bruhl and to the memory of Durkheim. It is, besides, only the first half of a more general study which is to trace the complete evolution of the contractual bond from the *statut* of most ancient societies to the spontaneous respect for free conventions and for one's given word in modern civilizations. We see in this book that the sentiment of fidelity to assumed engagements, which to most moralists has seemed to be simply a moral sentiment depending directly on conscience, is in reality a very composite product and the result of long transformations. It has been formed partly, in imitation of natural relationship, by the establishment of artificial relationships involving reciprocal obligations; partly by the social bonds resulting from marriage; partly again through the curious institution of 'potlatch' to which a considerable part of the book is devoted; finally through the influence and on the model of the individual wills of chiefs, when the régime we may call feudal develops, or when the social group is incarnated in a king or lord, concentrating in his hands force and social wealth, and therefore the power of decision and negotiation. Without drawing a definitely ethical conclusion, which would not be justified until the second volume, M. G. Davy indicates at this stage the close solidarity resulting between *statute* and *contract*, between the collective law and the individual will, and the error of the dialectic which tends to oppose these to each other as if they were derived from two radically distinct principles. One can realize the importance of this idea if one thinks of present conflicts in juridical ethics: on the one hand the question of knowing to what extent the social laws restraining the free play of competition and contract are legitimate; on the other, what recognition should be given to the principle of 'national sovereignty' and to the resistance which it makes against the League of Nations. Even though the problem remains in suspense, it is a great deal to have indicated a possible solution or at least a simplification, thanks to the historical knowledge thus afforded of the factors which have to be taken into consideration. For the rest, how M. Davy understands this relation can be seen more clearly in his little book, *Le Droit, l'Idéalisme et l'Expérience*.[2]

[1] Alcan.
[2] Alcan.

To *a priori* idealism, with its innate values inscribed on the tablets of natural right, he opposes an idealism whose values are "acquired and constituted" by a slow effort of human consciousness, "in the course of the long historical progress of civilization." These values, according to him, are all the more precious and sacred to us, not because they have been received ready made, but because we have constructed them piece by piece in adapting them to circumstances. We may note how similar is this conception of 'practical reason' to that noted above regarding the rôle of rational principles in science. This conception likewise presupposes the distinction between constitutive and constituted reason: without the former it would be but an empiricism of force and of animal need, at most a passive acceptance of a social will which would remain unintelligible to us. It becomes perfectly harmonious with the ideal of rationalism when its full significance is given to that word *progress* which comes so naturally from the author's pen. I have no doubt that it has this full significance in the thought of M. Davy.

Has it also this import among other philosophers who make use of formulas almost identical in appearance? M. Ch. Lalo, whose studies in aesthetics are well known to the readers of this REVIEW, has just published a new work, *L'Art et la Morale*,[1] the second part of which is entitled "Esquisse d'une théorie generale des valeurs," and in which we read: "We judge *ideal* for us what a higher moment of evolution will pronounce *normal* for itself. To propose this ideal as a living imperative, is nothing else than to propose a hypothesis regarding the *progress* of humanity" (p. 137). The words are almost the same as M. Davy's: but their spirit seems at first sight quite different. For if we examine the context we note that this progress is but the passage to "the next state" of the type of social health. Thus it does not imply a definable progression of normal types, in their succession, which would reëstablish in the future the existence of a unique value. Besides, M. Lalo rejects expressly the notion of absolute value. And yet is this idea altogether absent in *L'Art et la Morale*? No: for, in the next chapter, progress seems susceptible

[1] Alcan.—*Cf.*, by the same author, *La Beauté et l'Instinct Sexuel* (Flammarion), which treats a special aspect of the same question.

of a fixed definition: it consists in a gradual and increasingly broad synthesis of lower elements, embracing little by little in its harmony all human tendencies. If there is no absolute value, it is thus, according to him, only "because there is no absolute achievement." "The sin against the Holy Ghost is not to know how to be complete. . . . In the perpetual becoming which is human life, there is the more value the more there is of synthesis" (179). And consequently, the hypothesis about progress would, in the main, apply for him also to the entire curve of civilization. In its contents it is doubtless far from being in accord with the idea of assimilation which we considered above; it sets the ideal in the *totality*, as did Hegel, and not in the *community*. But nevertheless it seeks definitely to formulate a unique and common type of change, defining progress: and this is a homage, at least indirect, to the values of identity.

Nor is there less activity in the domain of practical application. M. Paul Fauconnet has published, under the title of *Éducation et Sociologie*,[1] a collection of Durkheim's articles or lectures which had appeared in various journals and had not yet been brought together; he has introduced them with an excellent preface, solid and lucid, on the pedagogical work of the illustrious sociologist whom he has succeeded.

Another work, alas also posthumous, is the *Philosophie du travail* of Gabriel Séailles, who died September 16, 1922, at the age of seventy, in his lovely country house at Barbizon—the Barbizon of the painters—on the outskirts of the forest of Fontainebleau. For a long time professor at the Sorbonne, he had devoted a great part of his work to aesthetics: *Le Génie dans l'Art* (1885), *Léonard de Vinci artiste et savant* (1892), *Watteau* (1901), *Eugène Carrière* (1911). But no less to be esteemed are his excellent *Histoire de la philosophie, par problèmes et par écoles*, written in collaboration with Paul Janet (1887), his studies on *Renan* (1895), *Renouvier* (1905), *J. Lachelier* (1920); finally his moral and political works, such as *Les Affirmations de la Conscience Moderne* (1903), *Éducation ou Révolution* (1904), and this *Philosophie du travail* just published by his family and by friends loyal to his memory. It contains all that makes the

[1] *Les Presses Universitaires de France.*

figure of Gabriel Séailles so characteristic and so attractive, even to those who do not share his opinions: his passion for the Good and the Beautiful; his ardent liberalism; his faith in the innate sentiment of justice and in the value of thought, which, according to him, go beyond nature only in that they extend it; finally the ardor of his enthusiasm, the spiritual breadth with which he received doctrines and even sentiments opposed to his own, convinced like Leibniz that all affirmation is true in what it contains of the positive, and that international duty and the love of country should be reconciled without being sacrificed to each other. A good portrait of Séailles serves as frontispiece to the book: but how much better a portrait is the book itself!

MM. Bouglé, Bréhier, Delacroix, and Parodi, in a joint work entitled *Du sage antique au citoyen moderne*,[1] publish lectures delivered by them at the École Normale de l'Enseignement primaire, in which each of them has applied himself to extract from some one period of the history of civilization the elements of value most usable in our own day. There will be no difficulty in recognizing the kinship of this method with that discussed above in connection with the works of MM. Bouglé, Bayet, and Davy. It is not without interest to mention in this connection also, M. Delvolvé's *La Technique éducative*,[2] though it corresponds quite exactly to its title and consequently does not belong, properly speaking, to the field of philosophy; one part of it moreover consists only of critical reports. Nevertheless the authors' chapters on the foundations of moral education, on demonstrations in the field of morals, on ethical instruction in the public school, contain many things of more than academic or even educative interest, concerning as they notably do in a direct manner the relations of morality and religion.—As much and more should be said of M. Félix Pécaut's little book, *En marge de la pédagogie*.[3] Pedagogy is here above all an occasion for psychological, political, and moral reflections, of an invariably personal flavor, and often of great philosophic import. The studies devoted to Auguste Comte and to Durkheim are among the most penetrating that have been written on their

[1] Armand Colin.

[2] Alcan.—M. Delvolvé is now professor at the University of Toulouse.

[3] Fernand Nathan.

subjects. M. Pécaut thinks not only forcefully but with a freshness of spirit which has perhaps been preserved by his active functions as inspector general of primary instruction.

M. Guy-Grand has published a work, solid and full of facts, on *La Démocratie et l'Après-Guerre*,[1] in which he undertakes to describe the general movement of democratic ideas in our time, in politics and economics, and to discuss philosophically opposed theses, whether they come from the 'right' or from the 'extreme left.' M. Duprat has studied the moral and social question of the family.[2] Finally, it is only fair to set apart a place for a book of lofty inspiration and of a singular ardor of sentiment, *La Religion de l'Harmonie*, by M. Prat,[3] who was Renouvier's faithful friend during his last days and his collaborator in *La Nouvelle Monadologie*. In more than one place in his new book one hears the echo of the master's word. Like him, M. Prat approaches boldly those great problems of human destiny which the philosophers of today leave willingly in the shadow, and which nevertheless come up in the lives of all men, unalterable and menacing, like an iceberg in the midst of fogs. How are we to rid ourselves of war, of the 'predatory life,' whether one be its agent or its victim? Can we attain unto God, either by feeling or by reason? If we can, can we elicit from science, from art, from the love of justice, the equivalent of a positive religion? Can we conceive of an order of things on which the man of good will can stake his life without fear that he is spending himself for a chimera, a world of peace of which he might be in part the 'demiurge'? That which M. Prat expounds in this book ethically and philosophically, he has essayed to vivify in the manner of novelists, in another book, strange and interesting, *L'Initiateur*.[4] He shows the efforts, the triumph, the fall of this creator of harmony; but the fall is accidental, while the reason for continuing the effort is not.

IV.

One can still hear occasionally, but much less frequently than thirty years ago, that psychology is an autonomous science, as

[1] Garnier frères.

[2] *Le lien familial et les causes de son relâchement*, Alcan.

[3] Presses Universitaires.

[4] Presses Universitaires.

distinct from philosophy as physics or biology. Two reasons have lessened this separatism. The first is that a great *rapprochement* has taken place between philosophy and the positive sciences themselves that were formerly used for terms of comparison; the example being set in France by the *Revue de Métaphysique et de Morale* which celebrated last year its thirtieth anniversary. Since its origin, M. Xavier Léon, its editor, has assembled about him mathematicians, physicists, biologists; and this work of *rapprochement* has been continued by the creation of the *Société française de philosophie*, including from its very origin professional savants like H. Poincaré, Jules and Paul Tannery, M. Hadamard, M. Painlevé; and joined since its foundation by men of science such as MM. Jean Perrin, Gaston Milhaud, Émile Meyerson, Winter, Langevin, Piéron, Job, Pierre Boutroux. *La Bibliothèque de philosophie scientifique*, directed by Dr. Gustave Le Bon, and the *Nouvelle Collection scientifique*, organized by the eminent mathematician Émile Borel, have published a great number of works of which it would be difficult to say whether they are to be considered as works of 'science' or of 'philosophy.'[1]—That which no longer holds true of sciences distinctly constituted and admittedly separated from philosophy, has accordingly become quite difficult to maintain regarding a study like psychology, which, in teaching, in examinations, in libraries, in learned societies, has always been grouped together with philosophy. From another side, the influence of sociology has spread the idea that the most important and the highest psychical functions cannot be explained by physiology, but only by the relations of men with each other and by collective values; so that all questions concerning the spiritual life are inseparable from *normative judgments*, which have, in fact, always formed, much more than the metaphysics of being, the true center of that which is called philosophy.[2]

[1] For instance, among the most recent: *L'Espace et le Temps*, by M. Borel himself; *L'Unité de la Science*, by M. Leclerc du Sablon. In another collection of a somewhat different character: *Des Sciences physiques aux sciences morales*, by M. Rueff, (*Les questions du temps présent*, Alcan).

[2] See the *Introduction au Traité de psychologie* by G. Dumas, which is mentioned below.

[3] Alcan.

La Religion et la Foi, by M. Henri Delacroix, is perhaps the most noted work in this field. The two dominant characteristics of this study are its breadth and its objectivity. The psychology of the believer is described with much insight, on the basis of numerous and varied documents, which concern not only the states of the individual soul, but the milieux in which these are developed. Three types of faith are disclosed: the implicit faith, or pure trust in authority, the sentimental faith, and the reasoning faith. One of the interests of the book is to show that even where one of these types of faith is so predominant that it effaces the others in introspection, the principle of continuity permits the recovery of all three, and that this is the case from the most mediocre forms of religion to the highest. The analysis of mystical certitude, of prophetic inspiration, of fanaticism, of conversion, of abandonment of religious beliefs, serves to corroborate these results. To know the facts such as they are, to describe them and note their connections without ever judging them in the name of a doctrine, such is the rule which the author has imposed on himself; and he follows it with such resolution that nine times out of ten, if one opens his books at random, one will not be able to guess whether he himself is a believer or an unbeliever. Rarely has such caution been exhibited, in a subject so stimulating, not to make extrinsic judgments of appreciation. Rarely also has the framework of the usual psychological classifications been more freely abandoned in order to retain direct contact with the observed facts and to present their concrete forms in their organic reality. More severe, colder, less attractive in form than the celebrated work of James, this book goes further in analysis, in reach, in depth. What the author studies is not only religious experience, but faith, and even more precisely the relations of faith and religion. Religion for him is an expression of life, of the need of creating a synthesis that, on the one hand, will permit the fulfilment of our desires, and, on the other, will assure the solidity of physical laws and social institutions which alone can give us the means of 'holding fast to the real.' Without a recognized mechanism—and, if need be, one affirmed by the collective will in the fields in which it is not given ready made by nature—the sentiment would be lost in uncertainty,

and our ideal would not know where to get the means for its realization. Mechanism is the condition of finality. Thus faith is 'creative': the representation of a cosmos, the community of representation with belief, the force of institutions give it body; but it remains so to say the vital principle of this body, and by it is the latter insensibly renewed: dogma, ritual, art, morality, and even science are in a permanent state of exchange and reaction with faith.

Does not behaviorism, the '*psychologie de réaction*,' itself in its present form tend also by the very nature of things to reach over more or less to social and moral deductions? M. Henri Piéron is assuredly, in France, the writer who most distinctly represents this point of view; and in the preface of his new book *Le Cerveau et la Pensée*[1] he declares, not without some irony, that religious and philosophical beliefs, materialistic or spiritualistic, will always find ways of coming to agreement with the discoveries of science. But neither faith in God, nor materialism, nor the other problems of ontology are today the heart of philosophy. On the contrary, the very title of the first part of this book, "The general conception of neuro-mental functioning," deals directly with a synthetic problem the philosophical character of which is not open to doubt. To limit psychology to the study of reactions, to speak of *réceptions* rather than of sensations, is not to banish the questions which philosophers of all times have set before themselves regarding the thought and the conduct of men. It is only to approach these questions prudently, by the path by which one has the best chance, in renouncing immediate and grandiose systems, to attain in exchange that durable mutual accord of minds which is the fundamental condition of truth. The comparison begun in the very first pages between the physiological and the social, and the considerable space given to the psycho-physiology of language, would suggest analogous reflections.—This characteristic is perhaps even more marked in the voluminous *Traité de psychologie* published by M. Georges Dumas with the coöperation of twenty-five collaborators, some of whom are among the best known contemporary French psychologists.[2] Only the first

[1] Nouvelle Collection Scientifique, Alcan.

[2] Two volumes, Alcan.

volume has appeared, and it concerns chiefly the elementary functions of the mental life, the nearest to physiology: sensations, stimulations and movements, orientation, habit, etc. But the chapters by M. Rabaud on man in the animal series, by M. Wallon on the biological problems of consciousness, by MM. Barat and Meyerson on images, by MM. Barat and Chaslin on language, by MM. Dagnan, Delacroix, and G. Dumas on association, by M. Pierre Janet on 'psychological tension' and its oscillations, are full of ideas of undeniably philosophical character.—M. Cresson's little book on *Les réactions intellectuelles élémentaires*[1] is of interest alike to the psychologist and the logician, for it is almost entirely devoted to the description and analysis of reasoning by analogy; even more, to show that this reasoning, a necessary function of life, is also the shortest operation of thought, and that notwithstanding its perilous and illogical aspects, it remains the necessary condition of all higher intellectual activity.—Finally the solidarity of psychology and philosophy appears as clearly (though, to say the truth, with an altogether different approach) in *La Personnalité humaine*, by MM. Achille Delmas and Marcel Boll.[2] Of the two authors, the first is an alienist physician, the other a physicist, doctor of science: both are strangers to the whole philosophical tradition, and wish to remain strangers. Their very original method aims to base a positive theory of faculties and of character upon a direct study of mental pathology and physical temperament; their conclusion is none the less a complete theory of the will, of responsibility, of happiness, which leads them precisely onto the ground of philosophers and moralists. These will welcome them with pleasure, even though they appear to be rather away from home. One can always learn something useful from travelers.

In general, as we see, it is the spirit of behavioristic psychology which is dominant at present among the French specialists in the field. Perhaps this is one of the reasons why there is scarcely

[1] Alcan.

[2] *Bibl. de philos. scientifique*, Flammarion.—In the same collection has appeared the French edition of *La mémoire biologique*, by M. Eugenio Rignano. Its sub-title is also characteristic: "Essai d'une conception philosophique nouvelle de la vie." In this work the learned editor of *Scientia* has expounded in a fine synthetic manner his already well-known ideas on this subject.

any more interest in the study of unconscious phenomena, which had once seemed to promise such rich developments. These have not been realized, and for the last few years a strong movement is manifest among psychologists and psychiatrists against all that concerns hypnosis, 'secondary personalities,' intelligent psychological automatism, one could almost say against all that deviates from the mental functions recognized for centuries by commonsense. To this is doubtless due the persistent lack of success of Freudianism in our country. Not only is public opinion little interested in it, regarding it as a medical infatuation without philosophical importance; but, following the severe expositions of M. Pierre Janet and of MM. Régis and Hesnard, this doctrine has just been made the object of a detailed and not encouraging criticism by a well known psychologist, M. Charles Blondel, professor at the University of Strassbourg. His book, *La Psychanalyse*,[1] is copious, documented, often humorous; the very tone of the discussion shows well how weak is the influence which Freudianism has exercised on French scientific circles. He concludes entertainingly, and not without subtlety, by comparing the success of Freudianism with that of Gall's doctrine of cranial 'bumps,' and he is ready to diagnose the failing of certain psychologists for Freudianism as a mild form of what formerly was called '*la folie raisonnante*.'

On the contrary, on the part of the public at large, in the broadest sense of the term, there is to be noted a very lively success by all that touches on the marvelous, in philosophy or in psychology: occultism, telepathy, spiritism, theosophy. Original works of this kind and translations of foreign works are extremely numerous and sell with an ease all the more remarkable since the publishing crisis, so far as it concerns scientific works, is far from being terminated.[2]—Among the great number of books of this sort, many of which are without any importance, special mention

[1] Alcan.

[2] I would not wish to appear too pessimistic; but I beg the readers of THE PHILOSOPHICAL REVIEW to acquaint themselves with *L'Enquête de la Société des Nations* (Commission de coopération intellectuelle), "Sur la situation du travail intellectuel"; and notably with the reports of M. Luchaire, expert of the Commission. These are published in English by the World Peace Foundation, 40 Mt. Vernon St., Boston, Mass.

is due to the *Traité de Métapsychique*, by M. Charles Richet, as much because of the name and the intellectual position of the author as because of his serious effort to treat methodically and in a positive spirit so delicate a subject. It has, however, been discussed in the same spirit in an extended article by M. Pierre Janet, and a reply no less moderate and scientific has been presented by M. Ch. Richet.[1] Those who are interested in these phenomena, as well as those who think that there is nothing real in them, can congratulate themselves on seeing in the study of them more and more respect for the canons of criticism which alone make possible the attainment of general conclusions. "Where there is hue and cry," said Leonardo Da Vinci, "one is far from the truth. Those who possess a true science are in concord and enjoy their fruits in peace."

ANDRÉ LALANDE.

SORBONNE, PARIS.

[1] *Revue philosophique*, July and November, 1923.

LOGICAL METHOD AND LAW.[1]

HUMAN conduct broadly viewed falls into two sorts. Particular cases overlap, but the difference is discernible on any large scale consideration of conduct. Sometimes human beings act with a minimum of foresight, without examination of what they are doing and of probable consequences. They act not upon deliberation, but from routine, instinct, the direct pressure of appetite, or a blind 'hunch.' It would be a mistake to suppose that such behavior is always inefficient or unsuccessful. When we do not like it, we condemn it as capricious, arbitrary, careless, negligent. But in other cases we praise the marvellous rectitude of instinct or intuition; we are inclined to accept the offhand appraisal of an expert in preference to elaborately calculated conclusions of a man who is ill-informed. There is the story of the layman who was appointed to a position in India where he would have to pass in his official capacity upon various matters in controversy between natives. Upon consulting a legal friend, he was told to use his common-sense and announce his decisions firmly; in the majority of cases his natural decision as to what was fair and reasonable would suffice. But, his friend added: "Never try to give reasons, for they will usually be wrong."

In the other type of conduct, action follows upon a decision, and the decision is the outcome of inquiry, comparison of alternatives, weighing of facts; deliberation or thinking has intervened. Considerations which have weight in reaching the conclusion as to what is to be done, or which are employed to justify it when it is questioned, are called 'reasons.' If they are stated in sufficiently general terms, they are 'principles.' When the operation is formulated in a compact way, the decision is called a conclusion, and the considerations which led up to it are called the premises. Decisions of the first type may be reasonable: that is, they may be adapted to good results; those of the second

[1] This article is published simultaneously in the *Cornell Law Quarterly* and in this REVIEW by courtesy of the Board of Editors of the *Law Quarterly*.

type are reasoned or rational; increasingly so, in the degree of care and thoroughness with which inquiry has been conducted and the order in which connections have been established among the considerations dealt with.

Now I define logical theory as an account of the procedures followed in reaching decisions of the second type, in those cases when subsequent experience shows that the procedures employed were the best which could have been used under the conditions. This definition would be questioned by many authorities, and it is only fair to say that it does not represent the orthodox nor the prevailing view. But it is stated at the outset so that the reader may be aware of the conception of logic which underlies the following discussion. If we take an objection which will be brought against this conception by adherents of the traditional notion, it will serve to clarify its meaning. It will be said that the definition restricts thinking to the processes antecedent to making a deliberate decision or choice; and, thereby, in confining logical procedure to practical matters, fails even to take a glance at those cases in which true logical method is best exemplified: namely, scientific, especially mathematical subjects.

A partial answer to this objection is that the especial topic of our present discussion is logical method in legal reasoning and judicial decision; and that such cases at least are similar in general type to decisions made by engineers, merchants, physicians, bankers, etc., in the pursuit of their callings. In law we are certainly concerned with the necessity of settling upon a course of action to be pursued, giving judgment of one sort or another in favor of adoption of one mode of conduct and against another. But the scope of the position taken will appear more clearly if we do not content ourselves with this *ad hoc* reply.

If we consider the procedure of the mathematician or of any man of science, as it concretely occurs, instead of considering simply the relations of consistent implication which subsist between the propositions in which his finally approved conclusions are set forth, we find that he, as well as an intelligent farmer or business-man or physician, is constantly engaged in making decisions; and that in order to make them wisely he summons before his mental gaze various considerations and accepts and rejects

them with a view to making his decision as rational as possible. The concrete subject with which he deals, the material he investigates, accepts, rejects, employs in reaching and justifying a decision, is different from that of the farmer, lawyer or merchant, but the course of the operation, the form of the procedure, is similar. The scientific man has the advantage of working under much more narrowly and exactly controlled conditions, with the aid of symbols artfully devised to protect his procedure. For that reason it is natural and proper that we should, in our formal treatises, take operations of this type as standards and models, and should treat ordinary 'practical' reasonings leading up to decisions as to what is to be done as only approximations. But every thinker, as an investigator, mathematician or physicist, as well as 'practical' man thinks in order to determine *his* decisions and conduct—his conduct as a specialized agent working in a carefully delimited field.

It may be replied, of course, that this is an arbitrary notion of logic, and that in reality logic is an affair of the relations and orders of relations which subsist between propositions that constitute the accepted subject-matter of a science, relations that are independent of the operations of inquiry and reaching conclusions or decisions. I shall not stop to try to controvert this position, but shall use it to point the essential difference between it and the position taken in these lectures. According to the latter, logical systematization with a view to the utmost of generality and consistency of propositions is indispensable but not ultimate. It is an instrumentality, not an end. It is a means of improving, facilitating, clarifying the inquiry that leads up to concrete decisions; primarily the particular inquiry which has just been engaged in, but secondarily, and of greater ultimate importance, other inquiries directed at making other decisions in similar fields. And here at least I may fall back for confirmation upon the special theme of law. It is most important that rules of law should form as coherent and generalized a logical system as possible. But these logical systematizations of law in any field, as of contracts or of torts, in effecting the reduction of a multitude of decisions to a few general principles that are logically consistent with one another, while it may be an

end in itself for a particular student, is clearly in the last resort subservient to the economical and effective reaching of decisions in particular cases.

It follows that logic is ultimately an empirical and concrete discipline. Men first employ certain ways of investigating, and of collecting, recording and using data in making decisions; they perform their inferences and make their checks and tests in various ways. These different ways constitute the empirical raw material of logical theory. The latter thus comes into existence without any conscious thought of logic, just as forms of speech take place without conscious reference to rules of syntax or of rhetorical propriety. But it is gradually learned that some methods which are used work better than others. Some yield conclusions that do not stand the test of further situations; they produce conflicts and confusion; decisions dependent upon them have to be retracted or revised. Other methods are found to yield conclusions which are available in subsequent inquiries as well as confirmed by them. There occurs a natural selection of the methods which afford the better type of conclusion, better for subsequent usage, just as happens in the development of rules for conducting any art. Afterwards the methods are themselves studied critically. Successful ones are not only selected and collated, but the causes of their effective operation are discovered. Thus logical theory becomes scientific.

The bearing of the conception of logic which is here advanced upon legal thinking and decisions may be brought out by examining the apparent disparity which exists between actual legal development and the strict requirements of logical theory. Justice Holmes has generalized the situation by saying that "the whole outline of the law is the resultant of conflict at every point between logic and good sense—the one striving to work fiction out to consistent results; the other restraining and at last overcoming that effort when the results become too manifestly unfair." [1] This statement he substantiates by a thorough examination of the development of certain legal notions. Upon its surface, such a statement implies a different view of the nature of logic than that stated. It implies that logic is not the

[1] *Collected Legal Papers.*

method *of* good sense, that it has as it were a substance and life of its own which conflicts with the requirements of good decisions with respect to concrete subject-matters. The difference, however, is largely verbal. What Justice Holmes terms logic is formal consistency, consistency of concepts with one another irrespective of the consequences of their application to concrete matters-of-fact. We might state the facts by saying that concepts once developed have a kind of intrinsic inertia on their own account; once developed the law of habit applies to them. It is practically economical to use a concept ready at hand rather than to take time and trouble and effort to change it or to devise a new one. The use of prior ready-made and familiar concepts also gives rise to a sense of stability, of guarantee against sudden and arbitrary changes of the rules which determine the consequences which legally attend acts. It is the nature of any concept, as it is of any habit, to change more slowly than do the concrete circumstances with reference to which it is employed. Experience shows that the relative fixity of concepts affords men with a specious sense of protection, of assurance against the troublesome flux of events. Thus Justice Holmes says, "The language of judicial decision is mainly the language of logic, and the logical method and form flatter that longing for repose and certainty which is in every human mind. But certainty in general is an illusion." From the view of logical method here set forth, however, the undoubted facts which Justice Holmes has in mind do not concern logic, but rather certain tendencies of the human creatures who use logic, tendencies which a sound logic will guard against. For they spring from the momentum of habit once formed, and express the effect of habit upon our feelings of ease and stability. Such feelings have little to do with the actual facts of the case.

However this is only part of the story. The rest of the story is brought to light in some other passages of Justice Holmes. "The actual life of the law has not been logic; it has been experience. The felt necessities of the times, the prevalent moral and political theories, considerations of public policy, even the prejudices which judges share with their fellow men, have a good deal more to do than the syllogism in determining the rules

by which men should be governed." In other words, Justice Holmes is thinking of logic as equivalent to the syllogism, as he is quite entitled to do in accord with the orthodox traditions. From the standpoint of the syllogism as the logical model which was made current by scholasticism there *is* an antithesis between experience and logic, between logic and good sense. For the philosophy embodied in the formal theory of the syllogism asserted that thought or reason has fixed forms of its own, anterior to and independent of concrete subject-matters, and to which the latter have to be adapted whether or no. This defines the negative aspect of the discussion, and it shows by contrast the need of another kind of logic which shall counteract the influence of habit, and facilitate the use of good sense regarding matters of public consequence.

In other words, there are different logics in use. One of these, the one which has had greatest historic currency and exercised greatest influence on legal decisions, is that of the syllogism. To this logic the strictures of Justice Holmes apply in full force. For it purports to be logic of rigid demonstration, not of search and discovery. It claims to be a logic of fixed forms, rather than of methods of reaching intelligent decisions in concrete situations, or of methods employed in adjusting disputed issues in behalf of the public and enduring interest. Those ignorant of formal logic, the logic of the abstract relations of ready-made conceptions to one another, have at least heard of the standard syllogism: 'All men are mortal; Socrates is a man; therefore he is mortal.' This is offered as the model of all proof or demonstration. It implies that we need and must procure first a fixed general *principle*, the so-called major premiss, such as: 'all men are mortal'; then, in the second place, a *fact* which belongs intrinsically and obviously to a class of things to which the general principle applies: 'Socrates is a man.' Then the conclusion automatically follows: 'Socrates is mortal.' According to this model every demonstrative or strictly logical conclusion 'subsumes' a particular under an appropriate universal. It implies the given existence of particulars and universals.

Stated in legal terms, it thus implies that for every possible case which may arise, there is a fixed antecedent rule already

at hand; that the case in question is either simple and unambiguous or is resolvable by direct inspection into a collection of simple and indubitable facts, such as, 'Socrates is a man.' It thus tends, when it is accepted, to produce and confirm what Professor Pound has called mechanical jurisprudence; it flatters that longing for certainty of which Justice Holmes speaks; it reinforces those inert factors in human nature which make men hug as long as possible any general idea which has once gained lodgment in the mind.

In a certain sense it is foolish to criticize the model supplied by the syllogism. The statements made about men and Socrates are obviously true and the connection between them is undoubted. The only trouble is that while it sets forth the *results* of thinking, it has nothing to do with the *operation* of thinking. Take the case of Socrates being tried before the Athenian citizens, and the thinking which had to be done to reach a decision. Certainly the issue was not whether Socrates was mortal; the point was whether this mortality would or should occur at a specified date and in a specified way. Now that is just what does not and cannot follow from a general principle or a major premiss. Again, to quote Justice Holmes, "General propositions do not decide concrete cases." No concrete proposition, that is to say one with its subject-matter dated in time and placed in space, follows from any general statements nor from any combination of them however 'logical' it may be.

If we trust to an experimental logic, we find that general principles emerge as statements of generic ways in which it has been found helpful to treat concrete cases. The real force of the proposition that all men are mortal is found in the expectancy tables of insurance companies, which, with their accompanying rates, show how it is prudent and socially useful to deal with human mortality. The 'universal' stated in the major premiss is not outside of and antecedent to particular cases; neither is it a selection of something found in a variety of cases. It is an indication of a single way of treating, for certain purposes or consequences, cases in spite of their diversity. Hence its meaning and worth are subject to inquiry and revision in view of what happens, what the the consequences are, when it is used as a method of treatment.

As a matter of fact, men do not begin thinking with premisses. They begin with some complicated and confused case, apparently admitting of alternative modes of treatment and solution. Premisses only gradually emerge from analysis of the total situation. The problem is not to draw a conclusion from given premisses; that can best be done by a piece of animate machinery, by fingering a key-board. The problem is to find statements, both of general principle and of particular fact, which are worthy to serve as premisses. As matter of actual fact, we generally begin with a vague anticipation of a conclusion (or at least of alternative conclusions), and then we look around for principles and data which will substantiate it or will enable us to choose intelligently between rival conclusions. No lawyer ever thought out the case of a client in terms of the syllogism. He begins with a conclusion which he intends to reach, favorable to his client of course, and then analyzes the facts of the whole situation to find material out of which to construct a favorable statement of facts, to form a minor premiss. At the same time he goes over recorded cases to find rules of law employed in cases which can be presented as similar, rules which will substantiate a certain way of looking at and interpreting the facts. And as his acquaintance with rules of law judged applicable widens, he probably alters perspective and emphasis in selection of the facts which are to form his evidential data. And as he learns more of the facts of the case, he may modify his rules of law upon which he bases his case.

I do not for a moment set up such a procedure as a model for logical thinking; it is precommitted to the establishment of a particular desired conclusion; it is therefore not a standard of true inquiry. But it does illustrate, in spite of this deficiency, the particular point which is here being made: namely, that thinking actually sets out with a more or less confused situation, which is vague and ambiguous with respect to the indications it supplies, and that the formation of both major premiss and minor proceeds tentatively and correlatively in the course of analysis of this situation and of prior rules. Once acceptable premisses are given—and of course the judge and jury have eventually to do with their becoming accepted—and the con-

clusion is also given. In strict logic, the conclusion does not follow from premisses; conclusions and premisses are two ways of stating the same thing. Thinking may be defined either as a development of premisses or development of a conclusion; as far as it is one operation it is the other.

Courts not only reach decisions; they expound them, and expositions must state justifying reasons. The mental operations herein involved are somewhat different from that involved in arriving at a conclusion. The logic of exposition is different from that of search and inquiry. In the latter, the situation as it exists is more or less doubtful, indeterminate and problematic with respect to what it signifies. It unfolds itself gradually and is susceptible of dramatic surprise; at all events it has, for the time being, two sides. Exposition implies that a definitive solution has been reached; that the situation is determinate with respect to its legal implications. Its purpose is to set forth grounds for the decision reached so that it will not appear as an arbitrary dictum, and so as to indicate the rule for dealing with similar cases in the future. It is highly probable that the need of justifying to others conclusions reached and decisions made has been the chief cause of the origin and development of logical operations in the precise sense: generalization, abstraction, regard for consistency of implications. It is quite conceivable that if no one had ever had to account to others for one's decisions, logical operations would never have developed, but men would have continued to use exclusively methods of inarticulate intuition and dumb impression; so that only after considerable experience in accounting for their conduct to others who demanded a reason, and were not satisfied till they got an exculpation and explanation, did men begin to give an account to themselves of the process of arriving at a decision. However this may be, it is certain that in judicial decisions the only alternative to arbitrary dicta which will be accepted by the parties to a controversy only because of the power or prestige of the judge, is rational statement, formulation of grounds and of connecting, or logical, links.

It is at this point that the chief temptation and stimulus to mechanical logic and abstract use of formal concepts are intro-

duced. Just because personal and local elements cannot be entirely excluded, while the decision must assume as nearly as possible an objective, rational and impersonal form, the temptation is to abandon the vital logic which has led to the conclusion, and to substitute forms of speech which are rigorous in appearance and which give the illusion of certainty. Another moving force in the same direction is the undoubted need for the maximum possible of stability and regularity of expectation in determining courses of conduct. Men need to know the consequences which society through the courts will attach to their transactions, the liabilities they are incurring, the fruits they may hope to enjoy in security, before they enter upon a course of action.

It is a legitimate requirement from the standpoint of the interests of the community and of particular individuals. Enormous confusion has resulted, however, from confusing with each other *theoretical* certainty and *practical* certainty. There is a wide gap separating the reasonable proposition that judicial decisions should possess the maximum possible regularity in order to enable persons in planning their conduct to foresee the legal import of their acts, and the absurd because impossible proposition that every decision should flow from antecedently known premisses with formal logical necessity. To attain the former result there are required general principles of interpreting cases—the rules of law—and procedures of pleading and trying cases which do not alter arbitrarily. But principles of interpretation do not signify rules so rigid that they can be stated once for all and then be literally and mechanically adhered to. For the situations to which they are to be applied do not literally repeat one another in all details; and questions of degree of this factor or that have the chief weight in determining which general rule will be employed in judging the situation in question. A large part of what has been asserted concerning the necessity of absolutely uniform and immutable antecedent rules of law is in effect an attempt to evade the really important issue of finding and employing rules of law, substantial and procedural, which will actually secure to the members of the community a reasonable measure of practical certainty in framing their courses of conduct. The mechanical ease of the court in disposing of cases

and not the actual security of agents is the real cause, for example, of making rules of pleading hard and fast. The result introduces an unnecessary element of chance into the behavior of those seeking settlement of disputes, while it affords to judges only that factitious ease and simplicity supplied by any routine habit of action. It substitutes a mechanical procedure for the need of analytic thought.

There is of course every reason why rules of law should be as regular and as definite as possible. But the amount and kind of antecedent definiteness which is actually attainable is a matter of fact, not of form. The amount is large wherever social conditions are uniform, and where industry, commerce, transportation, etc., move in channels of old customs. It is much less wherever invention is active, and new devices in business and communication bring about new forms of human relations. Thus the use of power machinery radically modifies the old terms of association of master and servant and fellow servants; rapid transportation brings into general use commercial bills of lading; mass production engenders organization of laborers and collective bargaining; industrial conditions favor concentration of capital. In part legislation endeavors to reshape old rules of law to make them applicable to new conditions. But statutes have never kept up with the variety and subtlety of social change. They cannot entirely avoid ambiguity, which is due not only to carelessness but also to the intrinsic impossibility of foreseeing all possible circumstances, since without such foresight definitions will be vague and classifications indeterminate. Hence the claim that old forms are ready at hand that cover every case and that may be applied by formal syllogizing, is to pretend to a certainty and regularity which cannot exist in fact. The effect of the pretension is to increase practical uncertainty and social instability. Just because circumstances are really novel and not covered by old rules, it is a gamble which old rule will be declared regulative of a new case. Shrewd and enterprizing men are thus encouraged to sail close to the wind, and to trust to ingenious lawyers to find some rule under which they can go scot free.

The facts involved in this discussion are commonplace and they are not offered as presenting anything original or novel.

What we are concerned with is their bearing upon the logic of judicial decisions. For the implications are more revolutionary than they might at first sight seem to be. They indicate either that logic must be abandoned, or that there must be adopted a logic *relative to consequences rather than to premisses*, a logic of prediction of probabilities rather than of demonstration of certainties. General principles, for the purposes of a logic of inquiry, can only be tools justified by the work they do. They are means of intellectual survey, analysis and insight into the factors of the situation to be dealt with. Like other tools they must be modified when they are set to work amid new conditions and required to yield new results. Here is where the great practical evil of the doctrine of immutable and necessary antecedent rules comes in. It sanctifies the old; adherence to it in practice constantly widens the gap between current social conditions and needs and the principles used by the courts. The effect is to breed irritation, disrespect for law, together with virtual alliance between the judiciary and the entrenched interests that correspond most nearly to the conditions under which the rules of law were previously laid down.

Failure to recognize that general legal rules and principles are working hypotheses needing to be constantly tested by the way in which they work out when applied to concrete situations, explains the otherwise paradoxical fact that the slogans of the liberalism of one period often become the bulwarks of reaction in a subsequent era. There was a time in the eighteenth century when the great social need was emancipation of industry and trade from the mass of restrictions which held over from the feudal state of Europe. Adapted well enough to the localized and fixed conditions of that earlier age, they had become annoyances and hindrances as the effects of use of coal and steam showed themselves. The movement of emancipation expressed itself in principles of liberty in use of property, and of freedom in making contracts, which were embodied in a consistent series of legal decisions in which gradually the principles were laid down with increased naked and drastic force. But the absolutistic logic of rigid syllogistic forms infected these ideas. It was soon forgotten that they were relative to the requirements of

a particular state of affairs, needed to secure a greater measure of economic social welfare. Thus these principles became in their turn so rigid as to be almost as socially obstructive as 'immutable' feudal laws had been in their day.

That the remarks which have been made, commonplace as they are in themselves, have a profound practical import, may also be seen in the present reaction against the individualistic formulæ of an older liberalism. The last thirty years have seen an intermittent tendency in the direction of legislation, and to a less extent of judicial decision, toward what is vaguely known as social justice, toward formulæ of a collectivistic character. Now it is quite possible that these newer rules may be needed and useful at a certain juncture, and yet that they may also become harmful and socially obstructive if they are hardened into absolute and fixed antecedent premisses. But if they are treated as tools to be adapted experimentally to conditions as they actually obtain, rather than as absolute and intrinsic 'principles,' attention will go mainly to the facts of social life, and the rules will not engross attention so as to become absolute truths to be maintained intact at all costs. Otherwise we shall in the end merely have substituted one set of absolute and immutable syllogistic premisses for another set.

If we now recur to our introductory conception, that logic is really a theory about empirical phenomena, primarily connected with intelligent guidance of making decisions, and that it is subject to growth and improvement like any other empirical discipline, we shall recur to it with an added conviction: namely, that the issue is not a purely speculative one but implies consequences vastly important in practise. I should not, indeed, hesitate to assert that the sanctification of ready-made antecedent principles as methods of thinking is the chief obstacle to the development of the kind of thinking which is the indispensable prerequisite of steady, secure and intelligent social reform in general, and of social advance by means of law in particular. If this be so, infiltration into law of a more experimental and flexible logic is a social as well as an intellectual need.

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A REALISTIC OUTLOOK (IV).[1]

ATTRIBUTIVE DATA: MANIFESTATIONS, POWERS, AND VALUES.

WE cannot predicate individual substantive data of other individual substantive data, and, when we predicate a kind, we do not predicate it as an extended class of individuals, but as the concretive nature which they have in common. The whole nature which a substantive datum has and the whole relationship in which it stands always transcend exact knowledge; but we may have some exact knowledge about them by truly predicating distinctive attributes (in-beings or self-actions) and distinctive relations (inter-beings or inter-actions). These categories of attribute and relation are intercommune, giving rise to a threefold division into (1) pure attributes, (2) pure relations, and (3) relational aspects, which have an intermediate status.

1. There are no attributes not intimately connected with relations, but the duration, shape, bulk, weight, hardness, colour-status and inherent tendencies of a body belong peculiarly to *it*, although they are known by comparison with like attributes of other bodies. They are primarily known by their abstract qualitative likenesses, but they are also known by relations of association among themselves and with the bodies of given kinds to which they belong. They are not known as *being* relations of either sort. Moreover the likenesses involved are not mere likenesses (such as may occur between a portrait and a person) but cases of universal identity of the generic or specific attribute, which has its individual and possibly peculiar determination in each particular body which shares it.

2. A relation proper between substantive data is equally dependent on either or on all [2] of the substantive data related. Any simple relation between A and B is a dual fact. It not only covers the relational aspect which A bears to B, but also the

[1] For the three preceding articles see Vol. XXXII, pp. 37 ff., 263 ff., 512 ff., of this REVIEW.

[2] An important threefold relation is that of agent, instrument, and object; but this becomes twofold if we regard *instrument applied to object* as a relational datum, itself related as effect to the agent.

relational aspect (not necessarily similar, and not really identical if it is similar) which B bears to A.

3. The predicate of an ordinary categorical supposition which refers to some relation is always one-sided. It states the relation as though it were a mere attribute of *the* subject, when the whole relation is one which concerns some second subject (or grammatical object) just as truly as it concerns the first. This one-sidedness of thought may have its origin in the necessary one-sidedness of personal experience. Every corporeal person is one subject having endless physical relations to other bodies and numerous social relations to other persons. All these relations are primarily known as cases of self being affected by or self reacting from other things, while the action of anything which acts upon self and the changes taking place in anything upon which self acts are matters of external observation or of pure inference. We can only imagine the many different centres of relationship from which relations converge upon the one felt centre of personal consciousness. Now detached or contemplative thinking releases us from preoccupation with our personal selves, but it gives a quasi-self to anything about which we think. Thinking *about* it means that we give, for the time being, all attention to the aspects of the relations which the subject has, and do not attend to the whole relations as concerning other things equally with it. Up to a certain point this one-sidedness of thought is as desirable as it is inevitable. It is a condition of the adequate description of any substantive datum, which involves the setting forth of the entity's intrinsic character as well as *its* place in a wider context of reality. Monographs are valuable by the very fact of their concentration on one thing or one rigidly limited group of things, and their refusal to look at its relations from the manifold sides which are outsides to it. A biographer would not make much progress if he continually digressed to bring into his picture the lives of other persons known to, or the local details of places visited by, or the historical social conditions which had some influence upon, his subject. Thus while from an abstractly scientific and fully synthetic point of view it is necessary to look at all relations of two data equally from both sides, analytic description quite properly confines attention to the qualities and relational aspects of the thing described.

While I should not count actual relational aspects as pure attributes, I do count as pure attributes certain inherent tendencies to enter into specific relations when the requisite conditions arise. Natural potentiality is a totally different thing from hypothetical possibility, though verbal equivocation frequently confuses the two. The former is due to potential energy conditioned by the natural structures of the bodies in which it is stored. Combustibility is a true attribute of every piece of wood or seam of coal, although some coal always remains unmined and some pieces of wood disappear by slow decay without ever being burnt. The chemical elements are known chiefly by their inherent tendencies to combine in given proportions with other elements, and the most interesting qualities of animals and of human beings are their permanent hereditary or acquired aptitudes to feel and act in ways appropriate to different sorts of circumstantial occasions. The immediate feelings and actions are separable accidents, but some at least of the aptitudes are as essential to animal or to human nature as are their specific morphological structures and the process of life itself. Consciousness is a separable accident of the human organism, since it disappears in anæsthesia and sound sleep, but the inherent power to resume it and to resume therewith the whole nexus of personal memories and conscious aptitudes which it involves is the primary mark of personality.

Attributes, including relational aspects, may, I think, be divided into the two great classes, *manifestations* and *inherent tendencies*, to the latter of which I have alluded above. Manifestations are either *static* (*states* in a wider sense than the usual) or *kinetic* (involving motion or other manifest change). The static ones include *features of spatial extension* (bulk, shape, cavities, edges, corners, etc.) and *physical states* (weight, hardness, heat, etc.). The kinetic ones include *major processes*—those in the course of which a composite body is produced, preserved, or destroyed—and *contingent actions*—of bodies which remain intact, or are the same bodies after having acted as they were before acting. The last two terms cannot well be reduced to one-worded names without danger of ambiguity. In the preceding cases, however, I think we may save printer's space and

reader's time by substituting *powers* (without any implication of conscious power) for 'inherent tendencies,' *features* for 'features of spatial extension,' and *states* for 'physical states,' when mental states are not in question. All *manifestations* imply certain relational aspects of bodies to the sense-perceptual and imaginative experiences of human beings, but kinetic manifestations and such static manifestations as are naturally correlative to them involve relational aspects which a real body has to other real bodies, quite independently of their being humanly perceived or contemplated.

From the preceding analysis of the general categories of distinctive attributes, let us pass to a more detailed consideration of attributes (including relational aspects) as characterizing the different kinds of substantive data. When discussing the latter, in my last article, I began by distinguishing personalities, which are substantive as such, from their associated bodies, and then passed to the whole variety of data which are in some sense physically substantive and constitute the far-branching Order of Kinds. Now, in considering the distinctive attributes into which the concretive natures of substantive data can be relatively analyzed, I propose to begin with the simplest physical kinds and to end with human kind in its united physical and mental aspects.

As for the ether, protons and electrons, atoms and molecules, philosophy must evidently wait on the progress of physics for the better knowledge of these elementary entities. We will therefore pass at once to the simplest bodies of the molar order—local masses of specific chemical elements.

Since an elementary substance may exist in several different physical states and in innumerable different chemical combinations, it is questionable whether the portions of such a substance have any invariably manifest attribute save that which is manifest to the chemical experimenter—their uniform atomic weight. The other recognized attributes of an element are its powers to assume different physical states and enter into different chemical compounds, when the requisite physical conditions or substances with the requisite affinities are affecting it. Some portion of the element may be simultaneously existing in each of its different possible states and different possible compounds; but, save per-

haps in the major process of actual transformation, no particular portion can be in more than one state or in more than one compound. Still its varied powers to enter into the different states and different compounds on occasion must, I think, be accounted essential attributes of every portion of the substance. In *terrestrial* chemistry each element normally occurs either as a gas, a liquid, or a solid (in one or more solid forms), and the physical transformation from one to another of these states is a major process which, while leaving it the same chemical element, makes it a totally different physical substance. So, also, the chemical processes by which an element is either compounded or liberated from a compound are major processes. With the exception of atomic weight all the manifest attributes of a given element existing in a given physical condition may be changed when it enters a compound; though they can be restored when it is disassociated therefrom.

It is not necessary here to discuss the attributes of those chemical compounds which can, like the elements, exist in totally different physical states. We may pass from purely chemical to physico-chemical substances—substances, as the term is generally understood. These, as chemically constituted, may be elementary or compound or of mixed composition; but, in any case, the chemically constituted substance has a definite physical state, gaseous, liquid, or of some special solid consistency. Its specific name connotes this state and certain perceptible attributes connected therewith, and does not, except to those well versed in chemistry, connote its chemical composition. *Consistency* may, I think, be taken as the best term for the generic attribute contrasted with chemical composition and otherwise referred to as physical state.[1] There are gaseous and liquid consistencies, which respectively vary among themselves, but more significant are the specific variations of the multiform genus of solid consistency. Here we have such opposed categories as hard and soft, tough and brittle, rigid and pliable or plastic, elastic and inelastic, dense and porous, coherent and pulverized—qualities of which tactual or visual evidence can be had, and the individual determinations of some of which can be scientifically

[1] Such states are also familiarly called 'conditions'; but this, I think, is a misnomer. Conditions are conditioning relations.

measured. In addition to having characteristic consistencies, physico-chemical substances are generally known by their colour or relation to light (*e.g.*, water, treakle, chalk, slate, charcoal) and some are known by characteristic odours or flavours. Still it is to be observed that any physico-chemical substance is a mere material, without any typical features, molar structure, or characteristic magnitude. The smallest and the largest portions of it are equally *it*.

In passing from the attributes of material kinds to those of typical kinds, we must note that by far the simplest of the latter are not kinds of naturally evolved bodies—not even the relatively simple classes of crystals—but classes of artifacts, or things which men have learnt to produce, and to which they give regular shapes and structures, suited to the purposes to be served. These contribute kinds in the artifactual [1] sense, although the specimens of each kind need not be made of the same substance. All arrow-heads are arrow-heads, although they may be made of bone, flint, bronze, iron, or any other hard material which will serve. The geometrician's ability to abstract form from substance has arisen partly at least as a corollary of the artificer's ability to make the same sort of thing out of very different substances. Thus, what are called 'the mechanical powers' (wedge, screw, wheel and axle, pulley, etc.) are, in fact, artifactual kinds, whose essential attributes are the geometrical shapes given to some suitable substance—*any* substance having the necessary strength and either rigidity or (as in the case of the pulley-rope, or strap connecting the wheels of a machine) flexibility.

It is on the class of rigid solid bodies, and on the kinæsthetic experiences connected with the shaping of some of them, as well as with the drawing of symbolical figures, that Euclidean geometry is ultimately based. In this geometry, the various sorts of figures, whether solid or superficial, appear as quasi-kinds of

[1] 'Artificial' has acquired a derogatory significance not in the least merited by the generally excellent products of human inventive genius and industrial skill. I therefore suggest replacing it by *artifactual* (agreeing with *artifact*), which is more comprehensive than 'manufactured,' since it applies to products of fine art and of mechanical art alike. When, however, art expressly counterfeits natural objects, 'artificial' would seem appropriate, as in referring to artificial flowers, teeth, and limbs.

quasi-substantive data. They are represented in diagrams by drawn outlines. Such outlines are of course not lines as geometrically defined; but any one of the edges of an accurately shaped cube or pyramid is a real line, any one of its extreme corners a real point, any one of its surfaces a real surface, and its whole perimeter a real integral figure. All these are in reality attributes (as being features) of the body to which they belong, as are spherical, conical, cylindrical, or any other wholly or partially curvilinear shapes, and as are any internal surfaces and features of meeting surfaces which a hollow body may have. Thus solid and superficial figures and their subsidiary features are properly regarded as *attributive sorts*, not as substantive data falling within concretive kinds. When we imagine figures into which undivided surfaces or solids might be divided, or figures as lying within such surfaces or solids, there *are* no figures until they are actually made by marking boundary lines on the surface or by mechanically carving the solid.

There are certain broadly generic features of shape which do not depend on the precise geometrical figures assumed. First, we may take the correlatives, convex or *external* and concave or *internal* shape; the latter giving rise to what we call hollows, valleys, tunnels, chambers, receptacles, etc. Every possible external solid figure may be repeated in the shape of a cavity, and a hollow body may have two complete corresponding perimeters, external and internal, though any opening in or perforation of its substance will make them, at least theoretically into one infolding perimeter. Or a partially hollow body may, of course, contain various cavities not corresponding to its external shape. Other generic features of shape are those which depend on the comparative magnitudes of a body's three dimensions. Some bodies are *geometrically compact*—approximating to cube or sphere and having the three dimensions equal, or nearly so. Some are *elongated*, having one dimension greatly in excess of the two others, which are nearly equal. Some are *flattened*, having two nearly equal dimensions greatly in excess of the third. Some are *flattened elongated*, having a second dimension much less than the first, and a third than the second (*e.g.*, a flat ruler).

The whole variety of shapes which can be had by rigid bodies

can also be had by flexible bodies, with the important difference that, while a rigid body loses its typical character with its geometrical shape, which can be altered only by destructive forces, any single flexible body may assume and resume an indefinite number of varying shapes; though all must depend on its permanent consistency or on the texture or structure which has been conferred on it through the major process, biological or artifactual, which brought it into being. The powers of relative transformation which flexibility of substance gives are greatly enhanced when the shape of the body is elongated (*e.g.*, thread, wire, flexible tubes) or flattened (*e.g.*, leaves of plants, woven fabrics). Rigid and flexible parts are combined in all the higher organisms, and in many artifacts; for instance, a whip with rigid handle and flexible lash. Rigid parts themselves may be either naturally or artifactually articulated, so as to result in a pliable compound body (*e.g.*, articulated bones in the limb of an animal or a pair of compasses).

It was shown in my last paper that the fact of there being typical kinds of bodies into which mere materials are formed involves, besides the individual or integral types, typical collective groups, typical sub-integral parts, and typical ex-integral fragments. Now no one wants to discuss the attributes of fragments, other than their attribute (relational aspect) of being derived from integral bodies of given types. To attempt a discussion of the attributes of sub-integral bodies would be out of place in my present brief summary of attributive categories. So would be the endeavour to treat of the vast variety of forms and functions of integral manufactured bodies. I must, however, allude to the respective characters of *naturally evolved integral bodies* and *integral artifacts*, as dependent on the respective major processes through which they are produced.

The artifact, be it a bird's nest or an ocean liner, never takes any part in the making of itself, but every naturally evolving body, before it is fully evolved, has its own nucleus of energizing matter. It is, at least partially, self-creating. This applies to the formation of any individual crystal, of any single organism, and probably to that of any one of the great cosmic bodies. The case of the crystal is, however, very different from that of

the cosmic body and the organism, in that, when the major process of its formation is complete, it is a compact piece of rigid solid matter, no longer undergoing any process of its own, no matter what may be happening within its molecules. The earth, on the other hand, is a great body of fluids, with solid crust interposed, and is absolutely dependent on the continued major processes of rotation and orbital revolution for the preservation of its other attributes; while it does, as it were, continually feed itself with meteoric matter from the surrounding ether. So, also, the individual organism is dependent, not only on the vital fluids circulating within its relatively solid structures, but on the continued metabolism of its tissue-cells—the major process of life itself. This major process includes, as part of itself, the embryonic and juvenile development of any complex organism from its germ, and the radical metamorphoses which certain organisms, such as insects, undergo. The manifest attributes of the organism differ vastly at different stages of its development, but biology naturally assigns to the species the attributes of the adult and perfect type, except when the immature forms themselves are in question. Even then the potentiality of becoming the mature forms is naturally conceded to them.

It can hardly be doubted that the major process by which each individual organism gradually assumes the full status of its specific type is a far more uniform and regular process than that by which planets (and, possibly, through the course of ages, suns themselves) acquire the character of worlds capable of supporting life. For one thing, the terrestrial organism builds itself up out of specific carbon compounds, while the cosmic body integrates all or most of the chemical elements in its confusedly heterogeneous globular mass. But a still greater outstanding difference between these two cases is that the cosmic body does not perform contingent actions, whereas the individual organism does. Also, in the case of all the higher animal organisms, the major life-process of the individual is dependent on the contingent sexual actions of its parents, which have eventually brought the sperm and germ cells into fruitful contact.

Contingent actions may be classed as *cyclical* and *spontaneous* (including reflex, instinctive, and voluntary) respectively. The

former are periodical responses of the organism to climatic changes. The latter include free locomotion and its arrest, together with special responses to particular bodies or movements of bodies which occur within the organism's immediate vicinity, or into the presence of which its own locomotive activity may bring it. Now, with comparatively few exceptions, the contingent actions of the higher plants are cyclical ones and those of the higher animals spontaneous. The exceptions, in the former case, are the 'sensitive' phenomena exhibited by certain parts of plants, the curious habit which some plants have of entangling and feeding upon insects, and that much more humane process by which certain flowers close upon and temporarily imprison their insect visitors, in order apparently to make them more efficient agents of pollination. The exceptions, in the case of animals, are such as the migratory habits of certain birds and fishes, and the observation of set breeding seasons; but every single flight or alighting of a bird is a spontaneous action, as is mating (and fighting for the female's favour) in regard to the individuals concerned. Thus the general rule gives the actions of plants as cyclical, exhibited in the shedding and putting forth of leaves and flowering and fruiting in due season; those of animals as spontaneous, exhibited in all their special responses to sense-perceptual stimuli which awaken their instinctive desires, fears, or antagonisms, but perhaps most fundamentally in their freedom (apart from external stimulation and according to some central excitation which we should call our will) to move in any way of which their muscles are capable, or, having moved, to assume some particular posture of rest.

While self-locomotion, without definite objective, is characteristic of all animal life, it is chiefly through contingent responses to environmental stimuli (which responses include purposeful locomotion and its purposeful arrest) that the animal exhibits its specific instinctive tendencies and may exhibit certain rudimentary powers of individual intelligence. It is by the development of the latter powers, largely at the expense of the former, that the course of human evolution, accompanied by its great disparities of individual character, intellect, and achievement, is marked. The spontaneous actions which are consciously per-

formed, on occasion, by all civilized human beings are immensely more varied than those characteristic of any other animal species; while, through the division of labour and of interest in the civilized community, the aptitudes of humanity at large are seen to far outnumber those of even the most versatile individual. But this diversity of human habits covers all those which are socially evil or of questionable utility, and, while an exuberant variety of activity belongs to the human race, as such, it is the due coördination or subordination of manifold sorts of action in a well-regulated life which distinguishes its higher representatives and its progressive communities.

The spontaneous actions and correlative aptitudes of animals and men may be divided into the four great groups; *major bodily* (self-locomotion), *minor bodily* (feeding, etc., and manipulation, or its equivalent), *vocal*, and *sense-perceptual* (looking, listening, sniffing, etc.). By sense-perceptual *action* I mean a deliberate set of attention towards something. This intensifies, but does not cause, sense-perception, as such; since the latter, certainly in man and probably in other animals, may occur as vague awareness of surroundings (sometimes leading to reflex action) without arresting attention, or it may occur as that which does *arrest* attention before the attention is deliberately *bestowed*.

Men of the various extant races are clearly distinguished from all other animals by their human physiognomy and general physique, the latter including their upright carriage, their nearly naked skin, their dexterity and manifold powers of doing and making, and their unique vocal powers; but these are all physical attributes, and it is generally agreed that the chief human differentia is psychological. An important part of this mental difference seems to consist in finer and more ample sense-perceptions, involving the aptitudes for æsthetic arts; but the main part is usually said to consist in reason or rationality. These terms are badly in need of definition. If reason means an implicit inferring from past individual experience of the ways to achieve desired or avoid unwelcome consequences, many non-human animals are rational, their rationality corresponding to the inarticulate common sense or 'rule of thumb' of human beings. If reason is limited to the much higher functions of

valid reasoning in terms and the basing of true judgments on adequate grounds, it is chiefly an attribute of exceptional human beings; the majority manifest it only occasionally and in specific respects.

What appears to me to really differentiate mankind is a greatly increased power of imagination, with *some* understanding of and command of some language, these together giving rise to the formation of personal ideas and beliefs; though many so-called beliefs may be accepted verbal formulæ, to the terms of which very little meaning is attached. Most genuine ideas and beliefs are products of 'receptive contemplative experience,' being imbibed in childhood or youth from teachers or the general culture environment. Some, however,—a larger proportion in cases where the knowledge-interest is strong—are arrived at through personal reflection, the latter of course including the critical comparison of current doctrines which differ. We may, then, say that the possession of ideas and beliefs is the outstanding differentia of man, and we must not reduce this qualification to ideas alone or to beliefs alone. The versatile mind may be in possession of a great many ideas which are neither analysed nor bound together by definite theories, and the critical or scientific mind always has its serious doubts on many points; but some beliefs are entertained by everybody. There can be no absolute scepticism.

We cannot be simply indifferent to the object-matters of which we have ideas (all, of course, fail to have some ideas which they might theoretically have) or to the supposed facts concerning which we have formed opinions. If there is no other interest in some contemplated reality, there is at least the knowledge-interest. There is curiosity to be satisfied, and the curiosity of the scientific mind is insatiable. But the knowledge-interest is not the only, and, for most people, not the chief, interest that ideas and beliefs furnish. Love and hatred, desire and fear, veneration and contempt are bound up with those deeply rooted and largely inarticulate ideas to which some psychologists give the name of "complexes," and here, as well as in many less emotional fields, the affirmation of goodness or badness is acquiesced in before any rational ground of valuation is arrived at.

But are there, indeed, certain objective values at which reason can arrive? In other words, are there values which, like the positive manifestations and inherent powers above considered are genuine attritubive data? I hold that there are. A realistic philosophy cannot accept Hamlet's dictum that "there is nothing either good or bad but thinking makes it so." If we substitute 'finds or may find' for 'makes,' the reflection is true enough; but, as it stands, there are two sufficient grounds on which to challenge it. The first is that certain things are good and certain other things bad specimens of their specific types, irrespective of the human thought which appreicates perfection or criticises defect. The second is that what is good or bad in special relation to human well-being is so in regard to feeling and willing as well as to thinking; though thinking is certainly necessary to the formation of criteria, ethical, æsthetic, or pragmatical.[1] That thinking, however, which expresses a hasty personal or blindly accepted sentiment does not make the thing praised a good thing or the thing dispraised a bad one.[2] An intellectual belief, whether founded on personal taste or on formal acceptance of current opinion, that A is good and B bad may be simply erroneous. It will then probably be bad in itself for the person who entertains it. Should it be true, it will so far be good for the person; but it will not *make* A good or *make* B bad.

Let us now consider the objectively good and bad (1) in relation to non-human types, and (2) in relation to typical personality. Collective groups in general and human communities in particular do not possess attributes in the definite sense in which these belong to individuals. What in the community answers to a moral or intellectual quality of the individual is a social *institution*, either as established or as permitted by public law. If institutions are called good and bad respectively, it is not that *they* really have such qualities, but that each institution stands for a system of understood relations between individuals within a group, individuals and groups to which they belong, or groups

[1] What I understand by a pragmatical criterion is a prescription relating to the best or better means of compassing an end, when the value of the end itself is not in question.

[2] Hamlet's dictum does not logically involve, but, in its context, implies the point denied. To him Denmark "is a prison." So apparently is the natural universe to certain thinkers of 'other-worldly' types.

themselves as coördinate or as subordinate and superior respectively, and that these systems of relations may be good or bad systems. Thus national and other social institutions, as well as the great abstract laws of justice and liberty, are not attributive but complex relational data.

1. In a very general sense the good and bad involve the relations of being well-adapted or ill-adapted, systematic or chaotic, typically integrated or disintegrated. Reason is necessary to recognize, but not adequate to create, the values and disvalues in question. The evolution even of cosmic bodies and systems is an adaptation to balanced conditions of existence which are probably absent in mere nebulæ and meteoric swarms, and may probably be destroyed in certain rare cataclysms. But the balanced relation of cosmic bodies in systems such as the solar, if somehow good in itself, is somehow better in relation to the claims of life and living enjoyment. We can hardly help speculating as to the possibility of there being, in the actual stellar cosmos, innumerable worlds which are better or worse worlds, either in the primary sense that they afford better or worse habitats for living beings, or in the secondary sense that their chemical and physical constitution is such as to favour or retard the progress of life towards consciousness of a high order. These, however, remain pure speculations, and our knowledge of typical and other kinds is practically confined to those which appear at the earth's surface. Here chemical and physico-chemical substances cannot be accounted good or bad except contingently in their relation to living organisms and to humanity. Organic species themselves, the preservation of each of which seems to be the implicit end of its own individuals—the supreme good for them—have no general goodness, except as most of them may be supposed to fit, not too aggressively, into a great give-and-take commonwealth of terrestrial life, in which mankind assumes the rôle of a governing aristocracy. In such a commonwealth the mutual adaptations of plant to animal life, and those of sexual relationship, are outstanding instances of biological harmony.

If there are any organic species which consist in individuals perfectly uniform in structure and function, such individuals can

be neither good nor bad *of their kind*, any more than the atoms of a given element can be thought to be. When, however, as in all the higher species of plants and animals, there is considerable scope for variation, the individual, at the period of its maturity, may be a distinctly good or distinctly bad specimen. There are also, it is true, certain 'freak' variations, which may lead to new 'varieties' and eventually species. These are not necessarily either good or bad as judged by the standard of the extant type; but other variations are recognized as either embodying the type in more than usual perfection or as being notably imperfect. The goodness which consists in perfection of type is not any one distinctive attribute, but a blending of many attributes without excess or defect of any, when excesses and defects are, in fact, very liable to occur. Plants, especially trees, of given species, vary more especially as regards the greater or lesser size and luxuriance, and the symmetry or deformity, of their structural growth. Animals have considerable, but less pronounced, variations in size and structure; any deformed or defective specimens seldom surviving; but they vary individually as regards the strength, agility, temper, instinct, intelligence—in a word, as regards the functional attributes—some degrees of which are common to the whole species. Each species seems to have its own unconscious ideal, which would blend its distinctive attributes in the best proportions; and certain individuals approximate closely to this ideal type, while the majority are good average specimens, but some are deformed or degenerate. It is clear that this goodness or badness in respect of type has reference to any particular type which has succeeded in establishing itself, and has nothing to do with any utility or injurious quality which a species has in relation to human welfare, or with that sort of human sentiment which pities the lamb in the eagle's talons or the fly in the spider's web.

It is a decidedly different matter when we consider the goodness or badness in respect of type which belongs to instances of those secondary kinds of things produced through the mechanical arts, the fine arts, and literary art itself. But the goodness or badness here in question really belongs to the products, being due to the good or bad work or material of the producer, and

not to the subsequent experience of the persons who purchase or otherwise enjoy (or fail to enjoy) the things produced. Implements and mechanisms are good if they effect the purposes for which they were designed. They are better if they effect those purposes with greater economy. Mere ornaments are good in various degrees from an æsthetic point of view which takes into account shape, design, colouring, and sometimes the special beauty or rarity of the material shaped. Houses, ships, vehicles, articles of clothing and of furniture are valued or disvalued according to the mixed criteria of sheer utility and durability, luxurious quality, and æsthetic excellence. Pictures and sculptures may be good or bad either in respect of the antithesis between truthful representation and misrepresentation, or of that between beauty and ugliness, or of both. Books and essays in poetry or prose must be judged from still more various standpoints; but no one denies that some are well written and others badly written.

2. While the products of human art and skill are good or bad of their kinds, mainly according to the workmanship which fits them for their purposes of practical use, adornment, instruction and sensuous or imaginative gratification, this fact, added to the caprices of personal taste, as more or less swayed by prevailing fashions, gives them a variable subjective value for the persons who possess or otherwise enjoy them. Possession, whether of money, land, houses, etc., implements which we want to use, or 'goods' in general is certainly a part, and not a despicable part, of human happiness. Many valuable products—roads and bridges, public parks and buildings and works of art, spectacles, plays, music and literature—are such as may be enjoyed in common by individuals who do not personally possess the sources of their gratification; but food, clothing, and such privacy of dwelling as most people desire are not in this category. Some goods, money, or purchasing and renting power is necessary to living, and, therefore, to working, as well as to most of the recreations of life. Livelihood being assured, as I think that it ought uttimately to be, to all who are able and willing to do their share of the world's work, the possibility of increasing one's material possessions and bequeathing some part of them should

remain as an incentive to increased personal endeavour. It is an incentive probably needed by the average man. It will never be the *chief* incentive to those who are capable of self-expression in art or thought, in the higher forms of social ministration, or in political leadership. For such outstanding personalities, the luxuries of life have at best a secondary value, and are often purposely eschewed. In any case possessions do not make character, though it is a mistake to suppose that any person's character can be wholly unmodified by the much or the little that he possesses.

What, then, does make character? Is there, or is there not, an ideal type of personality to which every man and woman should strive to conform? If there is, I venture the opinion that it is not the saintly and ascetic type which several of the great religions have favoured—not unless Schopenhauer's view is indeed the true one, and the highest destiny of humanity a collective suicide! As a not-wholly-disillusioned believer in progress, I suggest that the true ideal of personality lies in a due coördination or subordination between many pairs of interests which are apt to antagonize one another,[1] but especially in an elementary ethical ideal combining the two great desiderata which may be briefly described as ***kindness*** and ***vocation***.

Kindness consists fundamentally in a scrupulous regard for the lives and liberties of all other persons, which forbids us to wrong any of them by deed or word or even hasty thought. Acts of positive helpfulness will naturally flow from a spirit of kindness; also slowness to take offence and willingness to forgive personal injuries; but how far injuries which are anti-social as well as anti-personal (such as theft) should be forgiven without exacting some penalty is one of the hardest problems in casuistry. There is no moral obligation to be always 'doing good,' unless it be held that we *are* doing good when we carefully refrain from trespassing on any rights of others. That is the first requirement which Humanity may be said to expect of all at all times, as, on a famous occasion, England expected "every man to do his duty." The second desideratum, however—that-of-vocation—is more on

[1] His life was gentle, and *the elements*
So mixed in him that Nature might stand up
And say to all the world, 'This was a man.'

a par with Nelson's historical signal, provided we allow that the duty of killing or being killed in a national cause—true duty as it may have been in the past—is not one of the ultimate vocations whose fulfilment Humanity will bless.

The placing of *vocation* by the side of *kindness* is tantamount to the denying of a single ideal for the human being. It is not enough to be good as a man, without being or eventually becoming a good workman of some definite type, and largely identifiying oneself with one's calling. Kindness is expected of all; but vocations are many and strictly specific; each to be pursued by some smaller or greater group of persons who thus make their special contribution to the life of the community. It is not only in the realms of genius, publicity, scientific research and education, but in all useful occupations, that the pride of doing one's work well should become one of the chief inspirations of life. Every labourer, artisan, and tradesman, and every director of work and trade should find self-realization in doing that which he is fitted to do towards promoting the general sum of human happiness; not without regard to his own material reward, but also with special regard to the human end which he serves. Work well done is good done in a very true sense. But there may, of course, be some presently recognized vocations upon which a higher civilization will place its ban.

In making kindness and vocation the complementary parts of the moral ideal, nothing has been said about the special values of knowledge and wisdom to human life. Some rudiments of these are evidently necessary to constitute a normal personality; yet a considerable degree both of kindly feeling and of diligence in some unexacting vocation is possible for those who have the misfortune to be grossly ignorant and stupid. It is clear, however, that all the higher professions call for special knowledge and wisdom in applying it, and it should also be clear that a very considerable equipment both of general knowledge and knowledge of human nature is necessary for insuring that the spirit of kindness shall not fail in its humanizing effects. When persons are supposed to be possessed by evil spirits, or to harbour the 'sin of heresy,' or are recognized as 'enemies' to one's country, there is no prospect of their being treated kindly by the other-

wise humane people who are actuated by these damaging ideas; ideas which fuller knowledge would, at least in the two former cases, remove. Even when the evil influences of superstition and of religious and nationalistic intolerance are escaped, ignorance of physical and mental facts which should be known will rob kindly feeling of the powers to guard or warn others for their good, and will expose it to the danger of inflicting unintentional injuries. A considerable cultural extension of empirical knowledge is thus necessary to the realizing of the moral ideal in all but its most rudimentary forms; yet I should not count knowledge as an essential part of that ideal save as it either increases our human sympathies or adds to our aptitude for work that serves some human purpose.

For those who have the knowledge-interest at heart, knowledge is a great good in itself, not because it has a moralizing influence or any other practical utility, but because it is true and partially reveals some particular field or the general structure (including the categories) of the great Reality which at once surrounds and interpenetrates and comprehends our own being. While the particular fields are studied by respective departments of science, the general structure of the real is the perennial object-matter of philosophy. Here knowledge appears as the subjective relational aspect of that relation had by the personal mind to the All which at once transcends and inofrms it, and, barring a purely pessimistic personal outlook, philosophy inevitably tends to give rise to a natural, or naturalistic religion,[1] at least to some 'cosmic emotion' supplementing our concern for human well-being.

My last article touched on the interlinking of the Circumstantial and Universal Orders in the totality of being. Now idealism, in Plato and in many of its later forms, attempts to identify the universal with the good. I do not think that it has fully succeeded or that it can fully succeed; for crimes and diseases and destructions of circumstantially valuable persons and things, all of which certainly occur, are also clearly classifiable

[1] Compare Professor Everett's address in PHILOSOPHICAL REVIEW of March, 1923, p. 144, "In interpreting religion," etc. Referring to the preceding sentences, I should not deny that religion "falls within the moral order," although I do not regard it, any more than I regard æsthetic feeling, as an essential part of the moral ideal.

data, and, so far, fall under the Universal Order. I believe, however, that *increasing knowledge of the universal*, and hence of the genuine potentialities for good which are as yet only partially realized in our surroundings and ourselves, is that which relatively frees the mind from servitude to established habits and customs which are its more immediate relations to the Circumstantial Order. Such freedom promotes the fuller realization of truly human types of person and community. Nor is that an unreasonable faith which regards Nature, or the known-unknown system of real categories and conditions, as more consonant with the fulfilment than with the frustration of Humanity's most sacred hopes.

CHARLES E. HOOPER.

SOUTHAMPTON.

SOME IMPLICATIONS OF THE EVOLUTIONARY HYPOTHESIS.[1]

THE theory of evolution has come to us from a remote past. At first mainly concerned with the transformation of animals and of plants, it soon came to be recognized as an all-pervading and universal Law of Nature. The stars pass from a dull gaseous state to one of intense luminosity, then fluidity, glowing firmness, and finally to cold death. In these stellar laboratories the chemical elements are evolving, beginning with hydrogen and passing to the heaviest. On the earth the surface has been gradually shaped and organisms have appeared. The acceptance of the principle that underlies these changes has put aside forever the old static conception of the Universe and set up in its stead the modern view of unlimited flux. Resisted by many conservative minds, this principle has nevertheless won its way against all obstacles and is now acknowledged by the vast majority of thoughtful persons as an underlying feature of the world about us.

One of the products of this universal process is man. As applied to him evolution means that not only his body but his whole nature is the result of gradual growth. His emotions, his affections, his powers of memory and of thought, his imagination, are all elements in his being that have come, not fully formed like Minerva from the head of Jove, but by a gradual and slow process that reaches infinitely back into the past. It is to some aspects in this evolutionary growth of man that I wish to call your attention.

Generally speaking our daily lives are made up of an array of activities determined in the main by our surroundings. The heart beats more or less vigorously in accordance with an uphill or a downhill course. White corpuscles move about in our bodies

[1] An address delivered before the Williams College Chapter of the Phi Beta Kappa Society, May 9, 1924. A condensed form of this address was given before the Society of American Naturalists in December, 1923, and printed in *Science*, June 13, 1924, under the heading "Organic Determinism."

much as amœbæ do in ponds, and gather in regions of foreign invasion. Our eyes blink at the quick movement of even a friendly hand. Breathing adjusts itself as heart action does, and rebels against a self-imposed restraint. Our daily habits become so ingrained that dressing and undressing, eating, going to our occupations and returning from them follow the course of the sun. Life seems strikingly automatic.

Reflection, however, shows us that our daily performances are also permeated by a kind of action that calls for a certain measure of freedom. Our choices and volitions appear to us to be in many respects quite free, and this seems especially true the more we attend to this aspect of them. Such freedom is usually regarded as the basis of our social responsibilities, for a person cannot be held accountable for that which he is unable to control. Any complete scheme of nature must thus include a consideration of what seems to be constrained and of what seems to be free in human action.

A chemical examination of the human body shows it to be made up of some twelve of the approximate hundred elements recognized by the chemist, and of these twelve the principal ones are carbon, hydrogen, oxygen, and nitrogen. These four elements and in fact all others found in living bodies occur in abundance in inorganic nature. In brief, there is no element exclusively concerned with life. The chemical elements are further resolvable into electric units, protons and electrons, which in varying combinations give rise to these elements. How can a constitution such as this make clear to us the diversity of human action?

Considered from a chemical standpoint such a constitution lends itself with comparative ease to the understanding of many bodily processes as, for instance, those that occur in digestion and the like, the reflexes and the tropisms and many allied organic operations. But will it make clear the human capacity for imagination, for memory, will it serve to elucidate the emotions, the affections, and such other factors in human life?

In attempting to answer questions of this kind some of the older evolutionists proposed an interpretation of nature that appears to be quite false. Recognizing, as they did, the remark-

able character of the human mind and the fact that we were evolved from the simpler organisms, and ultimately from molecules, atoms, and, as we would say nowadays, from electric units, they proceeded to endow these simpler states with diminishing amounts of the qualities so evident in the final product, and to speak of the molecular mind, of the atomic mind and so forth. But for this view, early advanced by Haeckel and subsequently advocated by Lloyd Morgan, there is not a vestige of supporting evidence. The chemist in his laboratory weighs and measures carbon, hydrogen, oxygen, and nitrogen, combines these elements into complex compounds and decomposes such compounds again into their elements, and all with such conformity to law and order that he never for a moment finds it necessary to introduce the conception of an atomic mind to make clear the action of the materials with which he works. Such experimental variations as he finds he attributes to the shortcomings of his technique and as long as these variations lie within the error of his method, he does not concern himself with them—a procedure that has a pragmatic justification. But his experience in the laboratory is in strong contrast with other aspects of his daily life. On his return to his fireside he learns from his wife, for instance, that she has changed her plans and that instead of remaining at home for a quiet domestic evening, as agreed upon at the breakfast table, she has bought tickets for the opera and he, poor man, must don evening clothes and escort her to town. Yet this wife, as the chemist knows full well, is the same carbon, hydrogen, oxygen, and nitrogen that yielded him such uniform and consistent results in the laboratory. Surely this is a real contrast.

Everyone knows the objections raised to this distinction. Are human actions as free as they seem to be? Do wives really change their minds? Are we not rather deceived in ourselves when we think we are free? This is by no means a simple question. Bergson [1] and others have pointed out that our decisions depend much upon our past and that what seems to be a free present choice is as a matter of fact a step that was determined long ago. But such a proposal is no real solution of the question, for either it displaces the real act of choosing to some

[1] Bergson, H., *Time and Free Will; Creative Evolution; Matter and Memory.*

distant moment, or it tends to throw over the whole a cloud of obscurity through which light can scarcely penetrate. The question, moreover, is a peculiar one. We get our answer to it by a method very akin to introspection, and introspection as a method is looked upon more or less askance even by many psychologists who use it. No less a person than the great physiologist of the last century, Johannes Müller, declared that the rate of nerve transmission was probably much too high to allow of measurement, for, as he said, we no sooner will than we act. But the apparent instantaneousness of willing and acting depends upon our internal sensations and on this point we are certainly deceived, for when Helmholtz applied physical measurements to these operations they were found to be not instantaneous, as introspection would lead us to believe, but really very slow. Now our sense of freedom may be as untrue as our sense of instant action, in which case much of this discussion is pointless, but then again it may not be so, for thus far no Helmholtz has arisen to give physical test to this question.

In approaching the problem before us we must divest ourselves of many of our preconceived notions, particularly of those that we have gathered from a study of purely lifeless nature. We must not be surprised if the kind of uniformity with which inorganic processes proceed should not reappear in its simplicity in the organic. The kind of test that applies satisfactorily to the inorganic may be insufficient for the organic. If an experimenter ask us to turn a given hand to the right or to the left that he may record in ten trials the number of turns in one direction or the other, we know perfectly well that it lies within our power to make all turns to the right or all to the left, or some to the right and some to the left, in proportion as we wish. We know, further, that we may decide on the outcome of the test much in advance, or at the moment of action, or we may even decide on one course and, in the midst of the operation, change to another. From a personal standpoint the freedom of turning the hand is unquestionable nor is the decision about such an act necessarily relegated to the past. Though many human operations are as circumscribed and mechanical as are the reactions in a test-tube, others, such as those just mentioned, show a

certain degree of what seems to be real freedom. "Men at some time are masters of their fates. The fault . . . is not in our stars but in ourselves." And Palmer,[1] in discussing this problem, expresses much the same idea when he says "the laws of determinism rule our lives more than the vitalist has been willing to believe. But we are free to choose between two alternative lines of necessity and to that extent at least our fates are in our own hands." And no less an authority than Huxley adds "nobody doubts that, at any rate within certain limits, you can do as you choose." In my opinion, some human acts exhibit a limited amount of real freedom. To deny this is to fly in the face of fact.

One of my colleagues puts a delightful turn to the situation by declaring that though he does not understand how he really can be free, he always acts on the assumption that he is free. To me this is evidence of a certain degree of freedom, and I cannot agree with Jennings that with less than this minimum of freedom social responsibility can really exist. Whether my hand goes into my own pocket or into my neighbor's may make all the difference between a moral act or an immoral one, and in the normal human being the freedom to decide in which direction the hand will go is, I believe, at times a real freedom. Disease or habit may decrease or remove this freedom but that it exists under certain circumstances I have not the least doubt.

How can a freedom of this kind be thought of as a property of a body composed exclusively of such chemical elements as carbon, hydrogen, oxygen, and nitrogen? The answer to this question is to be found, I believe, in the way in which these elements are assembled, in the organization of the compounds that they form. Who would suspect the properties of water from those of its component elements oxygen and hydrogen? These two gases in no way suggest the liquid, water, with a maximum density four degrees above the freezing point, not to mention other physical properties. Yet we know that hydrogen and oxygen unite with a loss of energy to form water and that water with the absorption of energy may be resolved again into hydrogen and oxygen. This state of affairs is true of all other

[1] Palmer, G. H., *The Problem of Freedom.*

chemical combinations. The elements from which compounds are formed give no grounds for the prediction of the properties that the compounds show. This rule seems to hold in all chemical reconstitution. The properties of electrons and protons give not the least clue to many of the most conspicuous properties of the resultant atoms; nor do the peculiarities of given atoms foreshadow the states of the molecules into whose composition they enter. Mendeleef's Periodic Law points to many fundamental and important relations between different kinds of atoms, but these relations are relations between the atoms themselves rather than between atoms and their component electric units, or atoms and their resultant compounds. That science may eventually discover the extent and nature of these several kinds of relations is highly probable, witness the recent studies of Sir J. J. Thomson [1] and, in detail, such investigations as those of Stieglitz on color and molecular organization. At present, however, this general subject has reached little more than the speculative stage.

In all evolutionary growth such as we have been considering each step is marked by an abrupt and sudden change. Nature is not, as the older evolutionists would have us believe, a smooth ascent in complexity or the reverse, but each move is associated with abrupt alterations in which properties entirely novel and unpredictable appear. The changes suggest organic mutations such as biologists have been working with recently, and this resemblance may not be so superficial as at first sight it appears.

In fact what goes on in the inorganic realm is abundantly met with in the organic. When organic molecules are assembled in a certain way they exhibit properties quite unlike those they show when they are brought together in another way. The same kind of food may be supplied to a cat and a dog with the result that there will be, not an increasing similarity between the two animals, but more cat and more dog, for in each case the added materials will be organized in a way peculiar to each animal. If it were possible to assemble in an appropriate fashion all the materials of which a given living organism is composed, their interactions would be such that life would immediately appear,

[1] Thomson, J. J., *The Electron in Chemistry*.

for life is the expression of precisely such organization, just as the properties of water are the expression of a particular organization of hydrogen and oxygen. That living things have not been artificially produced as water has been is due to the enormous complexity of organisms and not to the necessary impossibility of the steps in the operation.

From separate organic compounds to organized living protoplasm we pass from one plane of organization to another and consequently from one set of properties to another. The essential properties of living protoplasm are no more to be understood from its constituent compounds than are the properties of water from those of hydrogen and of oxygen. The properties of living protoplasm are too manifold for description. They are those properties whereby living protoplasm acts otherwise than its chemical constituents do. They are as diverse as are the kinds of protoplasm. In specified forms of nervous protoplasm these properties include types of action in which a certain degree of freedom is involved, so that out of a given situation one of several possible and different lines of activity may result. This is the type of action that enables a person to turn his hand at will to the right or to the left. It is a type of action that determines its own direction. That this freedom is common to all living protoplasm is improbable. That it is the property of even all nervous protoplasm is unlikely. It appears to be characteristic of only certain kinds of nervous protoplasm. But that it is a property of such protoplasm seems beyond doubt.

This property disappears at once on the disorganization of the living nervous protoplasm that exhibits it. When thus disorganized such protoplasm breaks into its constituents, which in consequence of the change in organization exhibit very different properties as, for instance, those of lifeless bodies. A diminished flow of blood to the brain may bring about in a few moments such a disorganization of that structure that consciousness may temporarily disappear. Such reversible states in the continued presence of unfavorable conditions may pass over into profound disorganizations from which recovery is impossible and which represent a final chemical disintegration so deep-seated as to reach the death-point of the tissue. With each of these steps

in disorganization the properties of the materials change till simple lifeless compounds are reached. Thus differences in organization are accountable for differences in properties in the organic and the inorganic alike. This opinion has been strongly advocated by Spaulding in his recent volume *The New Rationalism*.

According to this view a limited freedom of action results from a given organization. The activity may pass off over one of several possible courses instead of being limited to a single course as is common in the inorganic. The contrast between a single course and multiple courses may be made clear by a mathematical comparison. If we ask ourselves what constitutes two in any group of units, there is only one answer, namely, two units. But if we put the same question concerning ten, there are several answers any one of which is equally true: a group of six and a group of four, a group of seven and a group of three, and so forth. The first condition typifies what is commonly met with in the inorganic, only a single possible course of action. The second condition represents what is found in certain kinds of nervous protoplasm, several equally possible courses. Thus from a given state of nervous activity, rendered possible by the type of organization, one of several courses of action may be taken, the state of activity itself determining which course will be elected. This view contravenes nothing in the energetics of inorganic action. It merely extends the single course of action in the inorganic to several courses and sets the determiner as to which course will be elected in the process itself. This property of nervous protoplasm is no more to be explained than are other fundamental properties of material, such, for instance, as gravitation. The growth of knowledge may eventually make clear to us the nature of these properties. At present they are open to observation and description rather than to explanation, if in fact explanation applies to such matters.

The view herein set forth is plainly not what Jennings and others mean by experimental determinism, for out of a given nervous activity may emerge any one of several lines of action without a corresponding difference being present in the initial

nervous operation. Or, to use the phraseology of Jennings,[1] different lines of action may appear without having been preceded by perceptual diversity. Within limits nervous activity determines its own direction. It exhibits what may be called limited indeterminism. This view is also not that expressed by Minot[2] that consciousness affects vital processes, for consciousness itself is a vital process and not an agent that influences vital operations from the outside. It is in the very midst of certain nervous activities and is, as a matter of fact, one aspect of them.

This view implies that the processes of nature are dependent upon the way in which natural elements are assembled and interrelated, that is, upon the way in which they are organized, for with each new plan of organization, be it from electron to atom, from atom to molecule, or from molecule to aggregate, new forms of action appear. The activities of each type of organization are peculiar to that type and are not, at least for the present, predictable from the activities of the elements that enter into the new organization.

Is the view advanced in this address vitalistic or mechanistic? Within recent years all such general views have been put on one or other side of the line supposed to separate these two fields. The authors of such views have suffered similar fates. They, too, have been ranged willy-nilly on one side or other of this imaginary line and often with incongruous and disturbing results. Some, however, are by their own confessions avowedly mechanists, others vitalists. But this has not prevented classifiers from arranging them quite differently. At times this matter has risen almost to the level of personalities. For a vitalist to call another a mechanist or the reverse seems to be a source of great relief to certain pent-up natures. Then, too, there are those who in conformity to the freedom argued for in this paper have taken the liberty of changing sides and, after having been for a while

[1] Jennings, H. S., "Modern Science and the Illusions of Professor Bergson," *Jour. Philos. Psych. and Sci. Method*, Vol. 10, pp. 353–358; "Doctrines held as vitalism," *Amer. Nat.*, Vol. 47, pp. 385–417; "Life and Matter," *Hopkins Univ. Circular*, new ser., No. 10; "Mechanism and Vitalism," PHILOS. REV., Vol. 27, pp. 577–596; "Experimental Determinism and Human Conduct," *Jour. of Philos.*, Vol. 16, pp. 180–183.

[2] Minot, C. S., "The Problem of Consciousness in its Biological Aspects," *Science*, Vol. 16, pp. 1–12.

advocates of one view, have subsequently gone over to the other. Consequently much confusion exists and, as Jennings says, persons holding the same view rally to different battle cries while those with diverse opinions march in supposed alliance.

What constitutes the mechanistic view is not easy to say. Newton expressed the hope that the laws of celestial mechanics would eventually find application to all nature including living things. Growth in this direction has been the characteristic of Loeb's biological studies.[1] These afford a safe basis for experimental research and require no defense such as Jennings has recently made for experimental determinism. It is plain, however, that the view advanced in the present address includes more than the orthodox mechanism of today will allow. It is, however, conceivable that the modern mechanistic view may expand, as in fact it has done in the past, and absorb this and all other like views.

It is also equally plain that the view herein expressed falls short of the requirements of even a moderate vitalism. In his defense of this doctrine Neal[2] states that human experience includes phenomena without spatial attributes, and I understand him to mean by this that in addition to the energy and materials of the universe there are other elements that must be taken into account. These non-spatial elements, according to Neal, are the peculiar subject-matter of vitalism. No such elements as these are involved in the doctrine advanced in this paper. According to this view no entelechy slows up, or hastens on, the processes of living nature. Neither does a psychoid nor an *élan vital* find a lodgment in this scheme. Types of organization, not the addition of new elements, characterize this view and in this sense remove it from the pale of vitalism.

Mast[3] in a recent paper has intimated that a declaration in favor of vitalism or of mechanism would be premature at the present time. This statement carries with it the implication that one or other of these views will eventually prevail. But

[1] Loeb, J., *The Mechanistic Conception of Life.*

[2] Neal, H. V., "The Basis of Individuality in Organisms—a Defense of Vitalism," *Science*, Vol. 44, pp. 82–97.

[3] Mast, S. O., "Problems, Methods and Results in Behavior," *Science*, Vol. 48, pp. 579–588.

in my opinion in addition to vitalism and mechanism there may be a *tertium quid*, or, if I may be allowed such expressions, possibly a *quartum* or even a *quintum quid*. The view advanced in this paper is some one of these. It agrees in principle with what Sellars has advocated in his *Evolutionary Naturalism* and with what Lloyd Morgan has recently called *Emergent Evolution*. It is not the animism of such psychologists as McDougall.[1] It ascribes to the energy of nature all those conscious attributes of man that make up what philosophers call his ego, his soul, and it seeks to introduce nothing supernatural. Nor does it agree with Bertrand Russell's opinion that the universe is composed of something between thought and material.[2] If it must be named it might be called organicism, to use a term introduced about a century ago and recently revived by Haldane.[3] But it is not Haldane's organicism, for this is based on his belief that the world with all that lies within it is a spiritual world. It is a view that ascribes to nature all that we are, that recognizes in the organization of materials those steps by which the non-living has become the living, by which action often absolutely and rigidly limited has attained to such degrees of freedom as are exhibited in human conduct, with its resultant responsibilities. It attributes to the energies and materials of nature those astounding and marvelous qualities that we recognize in the inner life of man, and seeks to show us that only through the profound study of the world we live in may we expect to gain a true insight into what we really are.

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[1] McDougall, W., *Body and Mind*, 5th edition, 1920.

[2] Russell, B., *The Analysis of Mind*.

[3] Haldane, J. S., *Mechanism, Life and Personality; Organism and Environment;* "Are Physical, Biological and Psychological Categories Irreducible?" In H. W. Carr, *Life and Finite Individuality*, pp. 11–28; *The New Physiology*.

DISCUSSION.

BERGSON'S DOCTRINE OF INTUITION.

SOME years ago I ventured to conclude an analysis of Bergson's doctrine of intuition[1] with the contention that Bergson finds himself in the end reduced to the following dilemma: "Either intelligence and intuition, science and philosophy, are diametrically opposed to each other, intuition excluding intellectual activity and the scientific method being a hindrance to the philosopher; or intelligence and intuition mutually involve one another, intelligence presumably being subsumed in intuition, science being a propædeutic to philosophy." *A propos* of this dilemma, I argued: "If the former alternative is accepted, intuition is too subjective to have any universal significance and Bergson's philosophy is of importance precisely in so far as it is inconsistent with its fundamental presupposition. Apparently Bergson more or less vaguely feels this and tacitly accepts the latter alternative. But in this case much of the novelty of the *philosophie nouvelle* disappears and we find the author teaching a doctrine which, one is inclined to think, has been taught in one form or another at least since the days of Plato, and in these latter days has been persistently emphasized, either in tacit reference or direct appeal, by Kant and, particularly, by Hegel and the neo-Hegelians."[2] And the chapter immediately following this contention (Chapter IV) was devoted to an attempted justification of it. The dilemma seemed to me to result from a certain inconsistency of statement that runs through Bergson's writings on the problem of intuition and its relation to intelligence. The elaboration of the dilemma I presented as pointing the ways in which Bergson's inconsistency logically leads.

In an article published in the last number of the REVIEW,[3] Miss Landes agrees that I was right in emphasizing Bergson's inconsistency and in tracing it to two quite different views of intelligence which he holds. She objects, however, to my suggested solution of the difficulty and insists that Bergson explicitly holds both views of intelligence and intuition in opposition to Kant. "The simple objection which occurs to one at once in reading Cunningham's interpretation and criticism

[1] *A Study in the Philosophy of Bergson*, 1916, Chapter III.

[2] *Ibid.*, pp. 63–64.

[3] "A Suggested Interpretation of Bergson's Doctrine of Intuition," PHILOSOPHICAL REVIEW, Vol. XXXIII, pp. 450–462.

of Bergson," she writes, "is that he attributes to Bergson far more unconscious inconsistency than one finds warrant for in the writings of this philosopher. No one, except perhaps those who unquestioningly label Bergson a subjectivist, can be unaware of the inconsistency in Bergson's statements. And Cunningham is unquestionably right in pointing out that at the basis of this inconsistency are the two views of intelligence which Bergson holds. But, in the opinion of the writer, Cunningham is wrong in asserting that Bergson openly avows one view and tacitly implies the other view. We believe that Bergson's own statements indicate beyond question, that he openly avows the second view as well as the first. . . . Cunningham is wrong in supposing that Bergson makes the mistake of believing that Kant has said the last word about the nature of the intellect. Bergson, quite as truly as Hegel, is aware that Kant's analysis of the work of the intellect is inadequate."[1] Thus, she contends, there is really no contradiction in Bergson's theory. In certain passages he is using the term 'intelligence' as synonymous with Kant's *Verstand*, while in other passages he is thinking of intelligence as transcending that Kantian conception; this latter view is what he has in mind under the form of 'intuition'. "With this simple understanding of Bergson's terminology the confusion and inconsistencies in his theory of knowledge vanish."[2]

The points at issue between this interpretation of Bergson's theory of knowledge and my own interpretation of it reduce mainly to two, namely, (1) whether Bergson clearly holds to the two views of intelligence which both interpretations discover in his writings, and (2) whether 'intuition' as Bergson views it always involves the work of the intellect and, if so, what this implies with reference to the claims for novelty made in behalf of the intuitive method.

1. As regards the first point, there is, I think, no very significant difference between my critic and myself. In the course of my analysis I called attention to the numerous passages in which Bergson seems to define 'intuition' and 'intelligence' in such a manner as to make them ultimately inseparable; and I emphasized the fact that this definition of the terms issued in a view quite different from at least the letter of Kant's critique. To this position my critic subscribes. I attributed to Bergson a more or less tacit acceptance of the second view of intelligence mainly for two reasons: (*a*) because the burden of his argument (particularly in connection with the problem of 'matter') seems to me to lie against it, and (*b*) because of his frequent shifting

[1] *Op. cit.*, pp. 460–462.

[2] *Ibid.*, p. 462.

from it to another and basically different conception without any apparent recognition on his part that such a shift had been made in the groundwork of the debate. My critic does not feel this hesitancy in Bergson's thought and is insistent that he is always clear on the point—though, she is forced to admit, he does not always "make clear in which sense he is using it [intelligence] in a given passage." However, the difference between us here seems to me to touch nothing of any very great importance so far as principles are concerned.

2. The second point at issue (the full significance of which leads beyond my critic's discussion) touches something of basal significance. To me, at least, it is not at all clear that 'intuition' for Bergson always subsumes intelligence; there seems to me to be in his writings the same equivocation in connection with 'intuition' as is evident in connection with 'intelligence.' But even if I am wrong in this, the second horn of the above dilemma is particularly formidable. Assuming that 'intuition' for Bergson always involves the work of intelligence and that intuition so conceived is the proper and exclusive method of philosophy, then, I am forced to repeat, I can see no reason why such a method should be paraded as something radically novel in the history of philosophy which promises the redemption of philosophy from the futile task of trying to accomplish the impossible. For such a view of 'intuition' seems to me to have been presented as the proper method long before the advent of the 'new' philosophy. Granting that 'intuition' is synonymous with intelligence in the sense in which intelligence is the method of 'knowing' which leads beyond the point of view of the Kantian *Verstand*, in what important sense does such 'intuition' differ from the method of philosophy preached and practiced in the classical tradition? This aspect of the problem does not fall within the scope of my critic's discussion, and it seems to me in consequence that her solution of the matter is much simpler than the complexities of the problem will permit. Even if all she says in her article be accepted at its face value, the main principle at issue would appear to have been hardly touched upon.

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REVIEWS OF BOOKS.

Le Pragmatisme américain et anglais. Étude historique et critique suivie d'une bibliographie méthodique. Par EMMANUEL LEROUX. Paris, Félix Alcan, 1923.—pp. 429.

This is probably the most thorough expository and critical study of Anglo-American Pragmatism that has yet appeared. The book is divided into three Parts, and has a bibliography. The attitude toward pragmatism, while frankly critical, is on the whole appreciative. Part I, "The Formation of Pragmatism," shows how, in reaction to the two philosophical tendencies then prevalent in America and England, naturalistic empiricism and absolute idealism, James, Schiller and Dewey had by 1903 arrived independently at positions in many respects similar, though different in important particulars. Part II, "The Development of Pragmatism," deals with the period subsequent to 1903, after James, Schiller, Dewey, and their respective supporters had accepted "Pragmatism" as a common designation, and during which they were consciously influenced by one another. The points of agreement and difference between the three schools of pragmatism and the "Pragmaticism" of Peirce are carefully discriminated. Part III, "The Value of Pragmatism," opens with a brilliant chapter on "The General Sense of Pragmatism," which summarizes more clearly, concisely, and adequately than has ever been done before, the general positions common to all pragmatists. The remaining two chapters of this Part, "The Pragmatic Criterion of Verification" and "The Pragmatic Definition of Truth" contain the author's own evaluation of pragmatism. The bibliography, arranged under fourteen heads, contains practically all books and articles in defence of pragmatism that have appeared in English and Italian, and the more important criticisms in these languages and also in French and German.

Students of pragmatism will find Parts I and II helpful in refreshing their memories on the history of the movement, and in throwing light upon difficulties of interpretation. The author has studied the whole literature with great care, and his conclusions on disputed points of interpretation are well documented. As, however, this ground is in general known to readers of philosophical English, it will be of more interest here to give a report of M. Leroux's own estimate of the value of Pragmatism in Part III.

The more important positions common to all defenders of pragmatism, and constituting its 'general sense' can be outlined, though of course inadequately, in a single paragraph. (These positions are also apparently held by the author, with the exception of certain points which will be mentioned in the remainder of this report). Logical problems must be solved by a frankly empirical method, descriptive of the process by which human knowledge grows and is established. This process unfolds in time, in accordance with a certain rhythm, the initial stage of which does not with certainty predict the termination. The process is active; only on condition of putting an idea to work can its verifying consequences be ascertained. To start an idea to work, we must be impelled by some desire; to the extent to which the idea brings satisfactory consequences we regard it as true. The criterion and definition of truth are thus the same—utility or success. Truth itself—not merely our knowledge of it—grows, becomes, changes, is made. So there is no truth *a priori*, and pragmatists are hostile to every dialectical method. Any assertion when first presented to the mind is an hypothesis. There are diverse modes of verification, but no verification is possible without experience. The old idea of disinterested knowledge is excluded; the process of verification is always oriented in personal ends. While pragmatism is a kind of radical relativism, it is not skeptical. It does not necessarily commit one to radical empiricism, but it favors the latter by removing every epistemological objection to it. Pragmatism brings a new solution to a problem long debated by idealists and realists; it affirms that knowledge does not reproduce a reality already complete, but effects a certain transformation in the reality given in experience. Reality has an eminently plastic character; the concrete analysis of knowledge, far from subjecting us to an inflexible determinism, reveals the efficacy of our action. Since an action always emanates from an individual, pragmatism naturally terminates in a pluralistic metaphysic that is evolutionary and dynamic. The truth of an action is established by its 'practical' consequences. 'Practical' here has a broad extension; it includes all the higher spiritual values. All pragmatists, to be sure, believe in a biological theory of knowledge, and speak of thought as an instrument of adaptation. But they also describe this as an adaptation to the social *milieu*, and to the realization of ideals (Chap. XIV). By 'intellectualism,' a term often used interchangeably with 'absolutism,' pragmatists mean: any conception of reality whether mental or physical that is already made, and which our minds can merely

reproduce; or else any conception of truth as absolute, pre-existent, and independent of human ends or efforts. Only because it is opposed to 'intellectualism' thus understood, is pragmatism properly called 'anti-intellectualism' (Chap. X). Professors Dewey and A. W. Moore rightly point out a sharp contrast between pragmatists and Bergson: while pragmatists distinguish between immediate experience and conception, they insist upon the unity of these two processes. Far from considering conceptual work as a pure artifice or deviation, they regard it as an essential and fertile manifestation of life (p. 299).

No pragmatist has ever affirmed that every satisfaction that issues from an idea is a mark of its truth. Pragmatic utility, as a criterion of truth, is only one species of utility. However, no English or American pragmatist has adhered consistently to an unambiguous definition of this species of utility that indicates truth. M. Leroux supports this contention by extensive citations. Dewey and his Chicago disciples have come nearest to success, especially in the distinction between cognitive and moral situations (pp. 264–277; *cf.* also pp. 199–215, 228–231). The reason for this failure is partly explained by an ambiguity in the English language, in which terms like 'meaning' and 'intend' sometimes connote 'significance' and sometimes a purpose 'to do something.' The Latin languages are free from this ambiguity, and this may be why two Italian pragmatists, Vailati and Calderoni, have succeeded in stating and defending a clear and consistent criterion of truth.

Vailati and Calderoni have achieved this success by subordinating the term 'action' to 'experience.' So Peirce's rule for "making an idea clear" becomes an injunction to determine the sense of an assertion by indicating what particular 'experiences' will or may be produced under specified circumstances, provided the assertion is true. In other words, every judgment implies a *prevision*, and the criterion of the *truth* of every judgment is found in the conformity or lack of conformity of 'experience' with this 'prevision.' All acts of thought are 'previsions.' The problem of truth and error arises when thought goes beyond the sense experience of the present moment and pronounces a judgment or 'prevision' on some future experience. To assert that an object exists is to say that we can by certain actions produce certain experiences, or gain access to the experiences of others. To affirm the truth of an historical event is to say that on the assumption that it is true, we can deduce 'previsions' that we can verify in our experience (pp. 276–281).

Vailati and Calderoni have made a further contribution in their disposal of mathematical judgments, which have furnished much

embarrassment to Anglo-American pragmatists (p. 283). In the origin of all concepts, definitions, rational principles, and scientific axioms, there is an element of arbitrary choice. No such creations of the human mind are truths, properly understood. We like to study the consequences that would follow from, or the conditions that would imply, the truth of this or that proposition, without troubling ourselves to ascertain whether the proposition is actually true, *i.e.*, in accordance with reality. Mathematics furnishes the best examples of such deductive hypothetical systems, in which the mind does not seek truth, but only *coherence* (pp. 283–290).

But suppose the objection is made that there is no such thing as experimental verification in the strict sense? Vailati and Calderoni concede to Milhaud that an hypothesis is never rigorously demonstrated by its agreement with facts, and that induction leaves a certain margin to arbitrary choice. But they point out that this choice is established by the principle of economy of thought. We seek to interpret facts by the least complicated hypotheses because they help us to obtain the 'previsions' that are surest, most precise, and of widest application. This use of hypotheses can even be carried over into moral and religious domains: the fertility of a belief is the sign of its truth in the sense that it gives 'previsions' of what is actually experienced. In all cases we are free to choose our principles; but once we have chosen them we cannot draw capricious deductions from them, but must think them out logically. These two different criteria of knowledge (mere 'coherence' and 'truth') cannot be completely brought under a common conception: yet, in the case of each, the progress of knowledge is made by an individual invention tested by objective control. And the two are often combined, as in physics (pp. 288–296).

In the controversy over pragmatism, the manner in which truth is established was pushed to the background. Opponents were disposed to concede, without many reservations, that the truth of a proposition may be *ascertained* by observation of its consequences (p. 300). The controversy focused about the issue whether truth is *constituted* by its consequences—a thesis defended by pragmatists, and by them alone. Opponents claimed that truth has an eternal property independent of our consciousness of it. Ideas may be true, without our ever becoming able to find it out. To deny this is to land in solipsism. M. Leroux thinks that the opponents of pragmatism push such objections too far. If logic endeavors to dispense with all recourse to experiences as depicted by psychology, it must become a purely

abstract and formal discipline, a mere algebra that does not inquire into the origin, rôle, or value of its symbols. To escape what they call "*psychologisme*," the recent neo-Kantians have no alternative but formalism (p. 304). However, the attempt of Schiller to escape solipsism by an appeal to social experience, and that of Dewey to reduce ideas and reality to different moments in the flux of experience were unsuccessful. James came nearer to success by making certain concessions to realism; but he was forced, at least implicitly, to admit that in some cases truth cannot be given in any *present* experience (pp. 312, f.). M. Leroux concludes that while 'truth' is always agreement with reality, in the sense of verification in experience, this verification is not always to be found in present (*actuelle*) experience. The verification in experience may in some cases only be possible or eventual (p. 318).

M. Leroux's modification of pragmatism leads to the following metaphysical consequences. Truth is verification, either present (*actuelle*) or possible. This excludes all doctrines of a reality totally different from that furnished by experience, *e.g.*, an Unknowable or Absolute that mysteriously engulfs all objects in its non-temporal existence. In human experience certain universal and permanent characters must be recognized, as well as other aspects of irreducible diversity. Pragmatism cannot escape making a choice between idealism and realism. M. Leroux inclines to a neo-realism that concedes our ability to touch reality, while affirming that reality is capable of existence outside of experience (p. 321). He insists that pragmatism has solidly established the active character of knowledge, in the double sense that progress in knowledge depends upon the direction and energy of our efforts, and implies a modification of objects through our will. Cognitive experience is a part of reality, and our action has real efficacy. But care must be had to distinguish between modifications in our thought and modifications that we make in objects; otherwise we should fall back again into the idealistic confusion. Reality is not absolutely independent of us, since we can act upon it; but it is relatively independent, since we cannot change it at our wish. While the pragmatistic theses, thus deprived of extravagant paradoxes, may seem to make a modest appearance, pragmatism none the less preserves a real interest. The doctrines that knowledge reveals to us a world transcendent to our experience and inaccessible to our action, and that the drift of the sciences is in the direction of absolute determinism were both widely current when pragmatism appeared. They needed to be refuted, and pragmatists

have at least done this. They have established the legitimacy of an empirical realism that affords place for the efficacy of human action.

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Hellenistic Philosophies. By Paul Elmer More. Princeton, Princeton University Press, 1923.—pp. 385.

This is the second volume, the third if *Platonism* which serves as an introduction is included, in the series designed by Mr. More to exhibit the development of the "Greek Tradition" as it passes from Socrates through Plato into Christianity. By the "Greek Tradition" he understands a body of thought derived from Socrates, developed by Plato and maintaining itself intact through the genius of the Greek speech while assimilating to itself numerous foreign accretions. The starting point is Socrates with the three-fold characterization of his attitude and teaching—scepticism, spiritual affirmation, and the identification of virtue and knowledge. The initial impulse was the peculiar form of dualism given to the Socratic philosophy by Plato. The great Hellenistic philosophies—Epicurean, Stoic, and Neoplatonic—are, according to Mr. More, attempts, each in its own peculiar direction, to reconcile the dualistic inconsistencies in the nature of things as we know them by forcing our experience into rationalistic moulds. The legitimate heir and continuer of the Tradition is orthodox Christianity. The Hellenistic philosophies bear much the same relation to the Tradition that the heresies in the Church bear to orthodox Christianity. Such, in general, is Mr. More's thesis.

The present volume treats of these Hellenistic philosophies—the title must be taken in some respects as a label of convenience—in some detail, with reference to the main theme, in a series of essays on Aristippus, Epicurus, Cynics and Stoics, Epictetus, Plotinus, Diogenes (of Sinope) and Scepticism; to which are added five appendices elucidating special points. Readers of Mr. More's previous volumes will not be disappointed in their expectation of finding in them entertainment as well as instruction, an easy flowing style, abundant learning, acute criticism, the charm of apt quotation from the great literatures of the world. No contemporary writer surpasses Mr. More in the art of the philosophical essay, and in the present volume he seems almost to surpass himself. The reader pauses at the end of each chapter with profound admiration of the author's literary and dialectical skill and lays down the volume with many a stirring thought and haunting phrase lingering in the memory. One

recalls, for example, the fine play on the *habeo non habeor* of Aristippus, the significant use of the foolish story of Lacydes and the pantry ("My boys, that's the way we talk about these things in the schools, but we live differently"), the clever tracing of the process whereby Diogenes the buffoon is transformed into the philosophical saint, and, among graver matters, the trenchant criticisms exposing inconsistencies and paradoxes in the course of the discussions of Epicurus, the Stoics and Plotinus. The criticism of Plotinus is especially noteworthy in view of the author's own Platonism; it is sympathetic up to a point, the reality of the mystic experience is admitted, but in the end it is uncompromising: the central dogma of Neoplatonism is declared to be derived not from Plato, but from a method of reasoning introduced by Aristotle combined with certain Oriental currents of theology which carried philosophy in a direction quite contrary to the true implications of Platonism. The argument supporting this contention is worthy of study and is, moreover, remarkable as the only point at which the name of Aristotle is brought with any prominence into connection with the Tradition.

The common aim of all these philosophies was *autarkeia*, a self-sufficiency comprising liberty and security. This was also the aim of Socrates, who, it is held, so applied his method as to obtain a calculating hedonism, an optimistic endurance of things as they are, and a spiritual affirmation. But the Hellenistic philosophers were imperfect Socratics; the Epicureans and Stoics followed the rationalizing tendency of the third of the Socratic theses (Virtue = Knowledge), the former combining the rationalism with hedonism, the latter with optimistic endurance, while the Neoplatonists rationalized the spiritual affirmation. Pyrronhism, on the other hand, radically rejected the rationalism and the spiritual affirmation, and combined scepticism with hedonism and endurance. Platonism alone, according to Mr. More, represents the true Socratic philosophy, uniting into one harmonious system all the Socratic theses and developing the Socratic equation in the direction of reasonableness and the higher intuition, while rejecting all metaphysical rationalism. Moreover, along with these Socratic traits Plato gave hints of a religious element, destined to be developed and made dominant by Christianity, which also, it is said—but what is meant is obscure—made the radical change of substituting 'revelation' for '*autarkeia*.'

According to this interpretation Plato was a philosopher, but no metaphysician. In fact, he was, in Mr. More's opinion, a sceptic, a more thorough-going sceptic, indeed, than Pyrrho; for while both

accepted the sceptical principle that only the immediate affections are indubitably certain and there is no knowledge of their source, Plato admitted, along with the physical, spiritual affections, whereas the Pyrrhonist, finding them elusive, rationalized them away as illusory. It is, therefore, not surprising to find scepticism at home in the Academy; it needed but a shift of emphasis, and the 'it is likely' of the Dialogues passes into the 'it is probable' of Carneades and Arcesilas. It is true, Plato always insisted that the Ideas are 'separate' from material phenomena, while at the same time he made various attempts to show that phenomena 'participate in' or 'imitate' them; but "such attempts were abortive to say the least, and in the main, and when true to himself, he left to the spiritual imagination a field wherein reason finds herself hopelessly baffled." The dualism of Plato has often been charged against him as a defect; in Mr. More's opinion it is one of his most conspicuous merits. But it is not a metaphysical dualism, in his view, but the frank recognition of the dualism of experience. The great enemy is monism, whether of the spiritualistic type, as in Neoplatonism, or the materialistic, as in Epicureanism and Stoicism. And the reason assigned is that it obscures, if it does not obliterate, the sharp distinctions which rationalism vainly tries to refine away, and especially the moral distinctions present everywhere in our experience. It is well to have these views so earnestly presented as they are in this volume and in Mr. More's other writings. As to his interpretation of Plato, it may or may not be right; that it is correct in very large measure, we do not doubt. But whether Plato's own philosophy was or was not at the loose ends it is here represented as being, and whether 'rationalism' can or cannot solve the problems which the dualisms of experience offer, there can be no doubt that Plato himself is one of the chief sources of that impulse to a reading of experience which eventuates in a metaphysic in which the appearances are saved, while at the same time the rational unity of the whole is vindicated. If anything is clear in the philosophy of Plato, it is his teaching of degrees of knowledge. One wonders if Mr. More has sufficiently considered that and the parallel modern doctrine of degrees of reality in the metaphysic of experience as throwing light on some of the perplexities which he finds so hopeless in the metaphysical systems of antiquity.

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SMITH COLLEGE.

The Works of Aristotle Translated into English. De Cœlo, translated by J. L. STOCKS; *De Generatione et Corruptione*, translated by HAROLD H. JOACHIM. Oxford University Press, American Branch, 1922.

The steady progress toward completion of the Oxford Translation of Aristotle should gratify all lovers of the classics and especially all students of ancient philosophy. The lack in English of any authoritative and complete translation of the Aristotelian works has hitherto been a reflection upon English scholarship, so rich in contributions to the study of Plato; and the present undertaking (which owes its initiative, it should be said once more, to the will of Dr. Benjamin Jowett) will no doubt furnish an incentive to English and American scholars to devote greater attention at first hand to the work of Plato's great successor.

The *De Cœlo* and the *De Generatione et Corruptione*, together with the yet untranslated *Physica*, will constitute Volume II of the Oxford Translation. In translating the *De Cœlo* Mr. Stocks has followed the text of Prantl, not, however, without making a number of important emendations. The translation is admirable in every respect. It preserves throughout the compact, unadorned style of the original, with a minimum of those interpolated sentences and phrases which are probably necessary to make Aristotle intelligible, but which often tend to make the translation a commentary. In this connection why should not such sentences, when it is necessary to supply them (as, for example, in 305^b 25–30, where the interpolated sentence is a résumé of a preceding argument) be bracketed, or italicized, or otherwise indicated in some uniform way? A convention of this sort, involving as it would a greater fidelity to the original, would surely better serve the intention of the editors to make these translations "such as a scholar might construct in preparation for a critical edition and commentary." There are only a few other criticisms that need to be made of the translation of the *De Cœlo*. The first is the failure (301^a 17–18) to make what seems an important distinction in Aristotle's thought between κεχωρισμένων and διακεκριμένων, both of which are translated "elements in separation." The thought is, Empedocles could not have constructed the heaven by building it up out of bodies *in separation* (ἐκ κεχωρισμένων), for our world is composed of elements that are διακεκριμένα, *i.e.*, distinguished parts of a whole; so that, as Aristotle goes on to say, a previous state of unity and combination is presupposed. To translate ἐκ διακεκριμένων by the same word as the preceding phrase causes this important antithesis

to disappear and with it, in my opinion, the point of the passage. "Continent" as a translation of τὸ περιέχον (310^b 8, 312^a 12, etc.) is attractive etymologically but is scarcely current English. In spite of the textual difficulties of 288^a 2–9 the translation should have been made more intelligible; as it stands the passage is practically meaningless. Rather full textual and other notes are given throughout, and the Index at the close seems to be complete.

The *De Generatione*, owing to its extremely condensed and crabbed style, offers much greater difficulties to the translator than does the *De Cælo*. Mr. Joachim has used, as the basis for his translation, a revised text now being published by the Clarendon Press under his editorship as part of an edition of the *De Generatione et Corruptione*. In the absence of this revised text it is impossible in many cases to make an intelligent judgment of Mr. Joachim's translation itself. In general he departs more widely than the translator of the *De Cælo* from the original, by the interpolation of explanatory words and sentences (again these are not indicated), by the inversion and rearrangement of difficult passages, and by the insertion of letters or numerals to indicate a disjunction or successive steps in an argument. If any criticism is in order it is that Mr. Joachim has availed himself too readily of such devices, so that the translation at times takes on the character of an analytical paraphrase. Two general characteristics of this translation deserve notice. On what principle does the translator employ the numerous quotation marks with which his pages are sprinkled? Terms like 'association' and 'dissociation' which are known to have had a special meaning with certain previous thinkers mentioned in the argument, are rightly marked in this way. But Mr. Joachim's usage is wider than this. Apparently any word with a special meaning seems to be thus indicated, and since most of the important terms used by Aristotle are of this sort, we find sometimes every fourth or fifth word thus set apart from the context. We can call this nothing less than an unfortunate mannerism. Again, Mr. Joachim has a fondness for replacing καί by '*i.e.*' or an equivalent. When Aristotle says (316^a 13) οἰκείοις καὶ φυσικοῖς λόγοις, Mr. Joachim makes it "by arguments appropriate to the subject, *i.e.*, drawn from the science of nature." This is perhaps justifiable, but when we find (322^a 19) ὁστοῦν ἢ χεὶρ καὶ τουτων τὰ ὁμοιομερῆ done into "bone or hand (*i.e.*, the tissues of these organic parts)" we are inclined to think this a striving after a precision which is not found in the Aristotelian language; while to translate (320^a 6) εἴτε ἔστιν εἴτε μή, καὶ πῶς ἔστι, by "whether coming-to-be 'is' or 'is not'—*i.e.*, what are the

precise conditions of its occurrence," is to misrepresent the original. The explicative 'and' is a good idiom in English as well as in Greek, and where it occurs in the Greek (I should be inclined to differ with Mr. Joachim in many passages where he has thus taken it) it is mere pedantry to feel obliged always to bring out its explicative character. Examples of these two mannerisms can be found on every page, and they unfortunately mar the appearance and the style of this scholarly translation. The following passage shows Mr. Joachim at his worst (317^b 26–28): "In other words, will that which is only potentially a 'this' (which only potentially *is*), while without the qualification 'potentially' it is not a 'this' (*i.e., is not*), possess, *e.g.*, any determinate size or quality or position?" Compared with this the original is even elegant: *λέγω δ' οἷον ἄρ' ἔσται ποσὸν ἢ ποιὸν ἢ ποῦ τὸ δυνάμει μόνον τόδε καὶ ὄν, ἁπλῶς δὲ μὴ τόδε μηδ' ὄν;*.

It would be presumptuous to criticize the interpretations of Mr. Joachim on the many difficult points in this most difficult text. The terms *γένεσις* and *φθορά* are uniformly rendered by "coming-to-be" and "passing-away," the hyphens presumably intended to give to these well worn words something of the technical character of the two Greek terms. But it is a surprise to find (314^b 7) "coming-to-be" used as a translation of *φύσις*. Mr. Joachim is throughout happy in his use of modern terminology, such as "contiguous discretes" for *ἁπτόμενα*; "original reals" for that word of many meanings, *ἀρχαί*; or "complementary factors" for *σύμβολα*. The translation of *τὸ μὴ ὄν ἁπλῶς* (318^b 9) by "what 'is' not except with a qualification," together with the rendering of a few other difficult passages (such as 317^a 8 ff, 317^b 6 ff, 320^b 1–12, 322^a 30 ff, 338^a 9–10, and others) must wait for their justification in the forthcoming text and commentary. Mr. Joachim has made an intelligible and consistent translation, triumphing over great difficulties, and the future student of Aristotle's physical theories will find this translation and interpretation indispensable.

Will the future see many persons studying Aristotle's physical theories? It is generally acknowledged that for the modern world Aristotle speaks with less authority in these works than in the Organon, or the Ethics, or the Politics. It is even assumed that Aristotle's physics is historically a retrogression in Greek science, and in the most recent general work on Greek philosophy, that of Gomperz, he is everywhere contrasted unfavorably with the Atomists in the name of empirical science. But this is scarcely doing him historical justice. Surely it is too much to criticize Aristotle in the name of empirical

observation for not basing his theories of physical nature upon facts which only the technical advances of modern physics have revealed. The truth is, it was the Atomists (whose theories, as Aristotle justly recognizes, came by direct descent from Eleaticism) who were given to conceptual construction of reality, while it was Aristotle who insisted most upon τὰ φαινόμενα, as then known. Further, apart from the question of historical justice, the sustained and powerful dialectic of the *De Generatione*, at least, should give pause to the modern scientist who might think it easy to explain growth or qualitative change by mechanical shiftings of quantitative elements. It will be long before Aristotle, even at his worst, will not have a great deal to teach the reflective scientist, as well as the philosopher.

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NOTICES OF NEW BOOKS.

Die Philosophie des deutschen Idealismus. 1. Teil: Fichte, Schelling und die Romantik. NICOLAI HARTMANN. Berlin and Leipzig, Walter de Gruÿter & Co., 1923.—pp. vi, 282.

This book is the first part of a volume of a new German history of philosophy, which is being written by Bauch, Hartmann, Hönigswald, Kinkel, Leisegang, Medicus, Verweyen and Max Wundt. The fact that its author is a former member of the Marburg School is in itself a recommendation, for beyond doubt the strength of this school lies in its brilliant and suggestive interpretation of the history of philosophy. As an example of the work of this school, Cassirer's *Erkenntnisproblem* represents an achievement which is not likely soon to be forgotten and in fact, in his third volume, published in 1920, Cassirer has already applied his thorough-going Kantian interpretation of the history of philosophy to the very field in question, although to be sure only with regard to the central problem, that of knowledge. Hartmann, however, no longer shares the Marburg confidence in the essential finality of the basic Kantian insights and is disposed to treat the period from Kant to Hegel for its own sake. He would seem to be rather definitely separated by this volume from the strict neo-Kantianism of Cohen, Natorp and Cassirer and its interpretation of the history of philosophy; he takes his stand in the rich and variegated field of "German idealism" and apparently hopes to draw material from it for the elaboration of a new system. His attitude toward the post-Kantian development is primarily one of interest in the *process*, the inevitable dialectic, by which the great systems came to be established rather than in the systems as finished products. He believes that there is present in this dialectic a set of problems, which are real apart from their systematic contexts, even apart from the principle of idealism. Just what meaning the dialectical problems of Fichte, for example, can have apart from idealism, however, Hartmann fails to make clear. For the most part he contents himself with a very clear and smooth presentation of the development of the systems without venturing very far from the established facts. In his Preface, Hartmann refers us to Kroner's new *Von Kant bis Hegel* and tells us that in contrast with this "*methodisch bahnbrechende*" work, which rests upon a wholly new mastery of the material, his work is merely introductory (vi). As an introduction, Hartmann's book is admirable in its clarity, its even style and its objectivity.

Among the special points worthy of note, we may remark the clear treatment of the "Kantians and anti-Kantians" (Reinhold, etc.) which reminds us that many of the problems of Kant-interpretation were elaborated soon after the publication of the Critiques. The account of the little-known Bardili's "pure realism," which approximates to the logical realism of Bolzano

and Husserl, is interesting. Three fundamental stages of Fichte's *Wissenschaftslehre* are distinguished: the first (1794) transforms Kant's *Bewusstsein überhaupt* into an absolute ego and explains the outer world as a creation of the ego; the second, 1804, abandons the concealed subjectivism of the first stage and seeks reality in an Absolute which is prior to all consciousness, even to "consciousness as such," while the third stage, that of 1810, recognizes the Absolute as God, and may be characterized as a system of pantheistic idealism. From this last standpoint consciousness as well as the external world is merely phenomenal. Ultimate reality is a subject-less absolute reason which is no more consciousness than object of consciousness. This development proves to Professor Hartmann that "gerade die prinzipielle Durchführung des Idealismus den Idealismus aufhebt und zum Realismus zurückführt" (91). But does this conclusion really apply to all types of idealism? It may perhaps stand as applied to the grandiose speculative developments of Fichte's metaphysical idealism, but it could hardly be applied to Kant's critical idealism without qualification. For Fichte's deduction of the world from the ego is fundamentally not in the spirit of Kant. Kant's critical philosophy is marked by an almost skeptical caution; it is a balance of antithetical considerations, warding off naturalism on the one hand and supernaturalism on the other and above all it does not seek positively to determine the noumenal substratum of experience. His 'idealism' is rather a limitation of the sphere of possible knowledge than a positive theory of the metaphysical process by which the self engenders the universe. Kant would presumably have pointed out the illusory character of Fichte's reasoning, which is out of touch with the world of experience. This is the reason why Kant's philosophy, unsatisfying as it is in many respects, remains the starting point for all serious speculation, while Fichte's system is merely one of many.

The extraordinary productivity of Schelling is seen in the fact that no fewer than five periods can be distinguished in his development, each of which is almost a system by itself. There is the philosophy of nature before 1799, the transcendental idealism of 1800, the identity-philosophy of 1801–1804, the philosophy of freedom of 1809, and the philosophy of religion which occupied Schelling from 1815. One can hardly help being struck by the distance between the poetical and finally theosophical speculations of Schelling and the sober analyses of Kant. The fundamental conception of Schelling's philosophy of nature, the organic or teleological interpretation of nature as the expression of unconscious intelligence is strongly reminiscent of Plotinus and Bruno. Kant's subtle critical *als ob* interpretation of teleology had no meaning for Schelling. The *Naturphilosophie* is obviously no continuation or further development of Kant's doctrine; it belongs to a wholly different tradition.

The philosophy of the romanticists is the subject of the last section of the book. It is recognized that romanticism is a spirit rather than a definite doctrine and furthermore one which found no really adequate representative. It animates especially Schelling and Schleiermacher, while Hegel went

far beyond romanticism. As a forerunner of romanticism the Dutch Hemsterhuis is given several pages, while Schlegel, Hölderlin, Novalis, and Schleiermacher are discussed as German romanticists.

On the whole, Professor Hartmann has furnished us with a reliable guide, although he brings little that is new either in fact or interpretation. The work includes a valuable bibliography and a helpful *Zeittafel*.

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Christianity and Social Science. A Challenge to the Church. By CHARLES A. ELLWOOD. New York, The Macmillan Company, 1923.—pp. 220.

This is a set of lectures delivered before the Yale Divinity School, and dedicated to those of the author's students who have entered the field of Christian work. It is a sequel to his *Reconstruction of Religion*. To effect the social reconstruction needed in our time there must be coöperation between religion and the social sciences, since there is no substitute for religion as a spring of social idealism. The feasibility of rapid progress in social reform is assured, now that sociology has proved human nature to be plastic and educable, while moral codes and social institutions are relative and changeable. On the other hand, social or moral principles are universal, and in a sense, absolute. As an illustration, the principles by which man should guide himself in the use of alcoholic beverages are universal, being inherent in man's physical, mental, and social nature, while the moral code regarding drinking varies greatly among different peoples. Once scientific knowledge of universal principles shall have become generally diffused, human conduct, with the aid of religion, can be brought into conformity with the principles. The task of the religious worker, therefore, is to inform himself, from the social sciences, of the universal principles, to inculcate them in all individuals through education, and to seek to control public opinion and social conditions (Chap. I). Three sociological principles which should guide religious workers in this task are elaborated in separate chapters: 'socialization,' 'service,' and 'love.' That reconciliation between conflicting classes within a nation and between rival nations can be effected by an application of these principles is the burden of another chapter; while the book concludes with a chapter on the problems of religious education.

With the general spirit of this book nearly every one will be in sympathy. The "practical religious worker" will find it stimulating and suggestive. Some sweeping generalizations, like the contrasts between Christianity and 'barbarism,' may startle the careful student of moral history; but in general the scholarship is as accurate as could be expected in a book of this nature. However, after making all allowances for the purpose of the book, a few criticisms seem to be called for. In the attempt to deduce social ethics in general from the ethics of the family, the virtue of 'love' is offered for the solution of economic, political, and international problems, and is defined as "a valuing of, and a devotion to, persons rather than things," and "a social

attitude of unselfish, passionate devotion to the welfare of others" (pp. 116, f.). Perhaps this is a desirable expedient to enable Christian workers to correlate the New Testament with modern social problems. But it obviously fails to do full justice to either. The family of course is and ought to be a commune, and family love communistic. The analogy of humanity to a family, one suspects, is responsible for the communistic tendencies in Chapter VI, notwithstanding the admission that communism would not be expedient in a complex society like our own (p. 154). Distributive justice seems in this chapter to be attainable by the 'haves' sharing with the 'have not's'; little or nothing is said about the desirability of cultivating such virtues as thrift, industry, prudence, and self-denial on the part of the 'have not's.' While the title of the book seems to promise a discussion of the relation of the social sciences in general to religion, 'social science' is speedily identified with sociology (p. 12); and we learn nothing of the other social sciences in the remainder of the volume. To be sure, enough has been derived from sociology to fill a single volume. But it is to be hoped that the "practical religious worker" will realize that each of the other social sciences has quite as much to teach him as sociology, and political economy probably a great deal more. The frequent eulogies of Jesus and Christianity are defensible, and perhaps needed to make the book appeal to the class of readers for which it is intended; but the social program offered would appeal quite as much to liberal Jews,—a fact to which the author could well have called attention in the interests of 'socialization,' 'service' and 'love' by and for all humanity. But these criticisms are not intended in a carping spirit. The book is excellent for its purpose, and it deserves to be recommended to all who are looking for light from sociology on the problem of making religion an effective agent in social reform.

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The Domain of Natural Science. The Gifford Lectures delivered in the University of Aberdeen in 1921 and 1922. By E. W. HOBSON. New York, The Macmillan Company, 1923.—pp. xvi, 512.

Professor Hobson presents an outline of the content of these Lectures in the following terms: "Any attempt to define and delimit the domain of Natural Science must concern itself with the questions what Natural Science is, and what it is not; what its precise function within the general domain of Thought may be; what the nature of its relations is with other parts of that wider domain; in what manner it has grown up, and what we may expect from it in the future; and to what kind of essential limitations it is subject" (p. 1). This program entails a discussion of the methods, assumptions, and aims of science in general (Chaps. I–IV), a necessarily brief survey of the course of development of the various special parts of the Science of Nature or physical phenomena (Chaps. V–XVIII), and a consideration of the relation of science to religion and philosophy (Chaps. XIX–XX).

With regard to the first problem the author explains that a scientific theory is essentially "a conceptual scheme, designed by the synthetic activity of the mind, working with the data of perception, for the purposes of representing particular classes of sequences and regularities in our percepts" (p. 36). Such a scheme must be (1) coherent, or logically consistent; (2) it must prove its applicability to actual phenomena; (3) it must possess the virtue of relative simplicity. We may note in passing, what is sometimes forgotten or misunderstood by technical philosophers, that scientific prediction has, strictly speaking, no direct concern with practical problems of the future, but rather merely with the addition to the content of scientific knowledge as such (p. 46). In direct if unconscious opposition to Meyerson's thesis, Professor Hobson declares that the concept of substance has no legitimate place or function in the field of science, and therefore science offers no support to any variety of metaphysical or physical realism. The validity of the ideas of efficient causation and 'logical' necessity the author also denies, and hence description, rather than explanation, seems best to denote the function of scientific theory. That is to say, science answers the question *how* but not the question *why* phenomena happen (Chap. IV).

Next come the chapters on mathematics (Professor Hobson's special field), physics, and biology—in the broadest sense of these words—surveyed from the point of view or plan set forth above. The author explains and discusses the significance of some of the most important concepts in these sciences, in their historical perspective.

Finally we approach the problem of the relation of science to philosophy, art and religion. Science and philosophy are alike in that the aim of both is truth in the sense of systematic knowledge, while they differ in that the former considers partial aspects of experience whereas the latter deals with experience as a whole. Art, morality and religion, on the other hand, have to do primarily with the sphere of values, though it is true, of course, that truth itself is a value (Chap. XIX). Ultimately, then, value and existence are inseparable from the point of view of the whole of experience, and this idea at once indicates the relations and limitations of these various 'forms of intelligibility.' Since philosophy is concerned with cognition in general it must devote itself, among other things, to a harmonization of all of these realms.

The last Chapter (XX) contains a discussion of "Natural Science and Theism"—especially of the various forms of the latter, such as Pantheism and Deism—and related questions. The author believes that for "candid exponents of Philosophical Theism . . . there do remain very real difficulties in reconciling Theism, of a type such as will satisfy the religious consciousness, with some aspects of the actual world . . ." (p. 499). Such difficulties, however, only make it the more necessary that earnest students coöperate in what is in some very real sense a common task, namely, the ideal synthesis of the several domains of human experience.

H. R. Smart.

Cornell University.

The Rise of Universities. The Colver Lectures in Brown University. By CHARLES H. HASKINS. New York, Henry Holt and Company, 1923.—pp. ix, 134.

These lectures are brief popular expositions of some striking phases of university life in Mediæval Europe. The lecturer's eye was upon an audience of students and teachers in a typical American University and he was plainly guided by their more obvious interests. There are three lectures: The Earliest Universities—The Mediæval Professor—The Mediæval Student. The first lecture is a necessary introduction and appears to be drawn from the common secondary sources. The second tells more about methods of teaching and subjects of study than it does about teachers. The third is at once more enlightening and more entertaining than either of the others. It would easily justify them. It will be a standard brief reference for college students who want to know about the student life in these early universities. The book is an important addition to such ready reference literature.

H. G. TOWNSEND.

SMITH COLLEGE.

Law and Freedom in the School. By GEORGE A. COE. Chicago, The University of Chicago Press, 1924.—pp. vii, 133.

The work of Professor Coe is well known to those interested in the application of ethical and religious theory to the processes of education. In this new book he is concerned with the development of individuals through the activities of the school for full participation in the freedom of citizenship. He finds that freedom is too seldom interpreted by the school as freedom within the law. He distinguishes natural law, institutional law, and moral law. These together constitute the natural limits within which the school should work. School enterprizes too often forget that law both closes and opens doors of opportunity. The school is too casual in its gift of freedom. The individual is really caught within a network of compensating laws. Insufficient analysis leads to the notion that the school is mainly concerned to provide an artificial environment for the expression of individual caprice. As a corrective of the abstract individualism of current theories of heredity we have here a glimpse of the individual as a vanishing and variable point of reference in an extremely complex spiritual, social, and physical environment. The author's supposition that the freedom of the child is continuous with the freedom of the adult can hardly go unchallenged by those who actually grapple with the problem of self-government in the school. "Children should participate in the control of society in the large in the same sense and by the same methods (though not to the same degree) as adults" (p. 67). The paranthetical clause reduces the statement to a matter of begging the whole question at issue. The book is popular rather than systematic but deserves a wide reading because of its wholesome corrective for much current orthodoxy in educational discussion.

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The following books also have been received:

Medicine, Magic and Religion. By W. H. R. RIVERS. Preface by G. ELLIOT SMITH. (International Library of Psychology, Philosophy, and Scientific Method.) New York, Harcourt, Brace & Co., 1924.—pp. viii, 148.

The Philosophy of Music. By WILLIAM POLE. Sixth Edition. With an Introduction by EDWARD J. DENT and a supplementary essay by HAMILTON HARTRIDGE. (International Library of Psychology, Philosophy, and Scientific Method.) New York, Harcourt, Brace & Co., 1924.—pp. xxiv, 342.

The Nature of Laughter. By J. C. GREGORY. (International Library of Psychology, Philosophy, and Scientific Method.) New York, Harcourt, Brace & Co., 1924.—pp. vi, 242.

The Philosophy of 'As If.' A System of the Theoretical, Practical and Religious Fictions of Mankind. By H. VAIHINGER. Translated by C. K. OGDEN. (International Library of Psychology, Philosophy and Scientific Method.) New York, Harcourt, Brace & Co., 1924.—pp. xlviii, 370.

Mind in the Parmenides. A Study in the History of Logic. By DONALD SAGE MACKAY. Los Angeles, 1924.—pp. 114.

Plato's Euthyphro, Apology of Socrates and Crito. Greek Text, edited with notes by JOHN BURNET. Oxford, Oxford University Press, 1924.—pp. viii, 220.

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Select Passages Illustrative of Neoplatonism. Arranged and Edited by E. R. DODDS. London, Society for Promoting Christian Knowledge, 1925.—pp. iv, 92.

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Oeuvres de Maine de Biran, III and IV. Mémoire sur la Décomposition de la Pensée. Par PAUL TISSERAND. Paris, Félix Alcan, 1924.—pp. cxl, 248 and 258.

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Les Valeurs Affectives et L'Exercice Discursif de la Pensée. Par DANIEL BERTRAND-BARRAUD. Paris, J. Vrin, 1924.—pp. xviii, 306.

L'Expérience Physique chez Roger Bacon. (Études de Philosophie Médiévale, II.) Par RAOUL CARTON. Paris, J. Vrin, 1924.—pp. 190.

L'Expérience Mystique de L'Illumination Intérieure chez Roger Bacon. (Études de Philosophie Médiévale, III.) Par RAOUL CARTON. Paris, J. Vrin, 1924.—pp. 376.

La Synthèse Doctrinale de Roger Bacon. (Études de Philosophie Médiévale, V.) Par RAOUL CARTON. Paris, J. Vrin, 1924.—pp. 150.

Les Idées Philosophiques de Bernardin Ochin, de Sienne. (Études de Philosophie Médiévale, VII.) Par DANIEL BERTRAND-BARRAUD. Paris, J. Vrin, 1924.—pp. 136.

Immanuel Kant Briefwechsel. Mit Einleitung, Anmerkungen, Personenund Sachregister versehen von OTTO SCHÖNDÖRFFER. Leipzig, Felix Meiner, 1924.—pp. xxxii, 434 and 435–922.

Das Eine, Die Einheit, und Die Eins. Von HEINRICH RICKERT. Zweite Auflage. Tubingen, J. C. B. Mohr, 1924.—pp. xii, 94.

NOTES.

Sixth International Congress of Philosophy.

The American Philosophical Association, through the courtesy of Professor H. Wildon Carr, Honorary Secretary of the Fifth International Congress, appointed for London in 1915, but interrupted by the war, has been authorized by the Permanent International Committee, as constituted at the Congress of Bologna, 1911, and by the English Organization Committee of 1915, to convene the next International Congress in the United States. The American Association has also received assurances of cordial support from philosophical scholars in England, France, Germany, and Italy. It, therefore, announces its decision to invite the philosophers of all nations to meet with it in the United States in the second week of September, 1926. The place of meeting—to be more definitely announced later—will be at one of the Eastern Universities, not far from New York. English, French, German, Italian, and Spanish will be recognized as the official languages of the Congress.

In a few months the American Association intends to issue a fuller announcement of the plan of the Congress and more formal invitations to its sister associations, other learned bodies, and our colleagues throughout the world. Meanwhile, inquiries and correspondence may be addressed to the Corresponding Secretary, Professor John J. Coss, Columbia University, New York, U. S. A.—For the Organizing Committee:—Nicholas Murray Butler, *Chairman*, A. C. Armstrong, *Honorary Secretary*.

News has just been received of the death of Francis Herbert Bradley, on Sept. 19, at Oxford, in his seventy-eighth year.

We give below a list of articles in current philosophical journals:

Mind, XXXIII, 131: *J. H. Muirhead*, Recent Criticism of the Idealist Theory of the General Will (II); *C. D. Broad*, Mr. Johnson on the Logical Foundations of Science; *Robert H. Thouless*, Soul Beliefs and Hypotheses; *S. B. Ward*, The Crowd and the Herd; *L. Susan Stebbing*, Mind and Nature in Prof. Whitehead's Philosophy.

The Journal of Philosophy, XXI, 15: *Harold Chapman Brown*, Scientific Thought and Reality. 16: *M. C. Otto*, A Forgotten Service of Kant; *Sterling P. Lamprecht*, Congres International d'Histoire des Religions. 17: *Frederick J. E. Woodbridge*, Mental Development. 18: *Oliver L. Reiser*, A Monism of Creative Behavior; *Louis Arnauld Reid*, Towards Realistic Psychology.

The Journal of Religion, IV, 4: *William E. Hammond*, Does the Church Lead?; *D. Luther Evans*, The Reactions of a Religionist to Behaviorism; *Henry Preserved Smith*, The Apologetic Interpretation of Scripture in Islam and in Christianity; *Archibald G. Baker*, Enlisting the Missionary in Research Work; *William Harmon Norton*, The influence of the Desert on Early Islam; *Donald W. Riddle*, The Martyr Motif in the Gospel according to Mark.

The Harvard Theological Review, XVII, 3: *Edward Kennard Rand*, Dom Quentin's Memoir on the Text of the Vulgate; *Gustav Krüger*, Literature

on Church History, 1914–1920, IV. The Church in Modern Times (Part One: The Period of the Enlightenment).

THE BRITISH JOURNAL OF PSYCHOLOGY, XV, 1: *Charles Fox*, A Study in Perception; *C. Spearman* and *K. Holzinger*, The Sampling Error in the Theory of Two Factors; *Ll. Wynn Jones*, A Note on the Correlations of Sums; *Alice Ikin*, *T. H. Pear*, and *R. H. Thouless*, The Psycho-Galvanic Phenomenon in Dream Aanalysis; *J. H. Wilson*, Comparison of Certain Intelligence Scales; *W. H. Winch*, Should Poems be Learnt by School-children as 'Wholes' or in 'Parts'?; *H. Banister*, A Further Note on the Phase Effect in the Localization of Sound; *Paul R. Farnsworth*, Notes on the Pitch of a Combination of Tones.

JOURNAL OF EXPERIMENTAL PSYCHOLOGY, VII, 4: *C. J. Warden*, The Relative Economy of Various Modes of Attack in the Mastery of a Stylus Maze; *Donald A. Laird*, Studies Relating to the Problem of Binocular Summation; *W. E. Blatz* and *W. T. Heron*, The Effect of Endocrine Feeding Upon the Learning Performance of White Rats; *A. T. Poffenberger*, Psychological Tests in Advertising; *Godfrey H. Thompson*, A Formula to Correct for the Effect of Errors of Measurement on the Correlation of Initial Values with Gains.

LOGOS, VII, 1–2: *L. Limentani*, Il positivismo; *A. Masnovo*, Il neotomismo in Italia dopo il 1870; *A. Levy*, L'idealismo critico in Italia; *M. Maresca*, Il neo-criticismo in Italia; *G. Della Volpe*, Il neo-hegelismo italiano; *E. P. Lamanna*, Il realismo psicoligistico nella nuova filosofia italiana.

ARCHIV FUR SYSTEMATISCHE PHILOSOPHIE, XXVIII, 3–4: *Cay von Brockdorff*, Ludwig Stein's Soziologie; *Hugo Szanto*, Mathematische und physicalische Antinomien; *Walter Del-Negro*, Relativitätstheorie und Wahrheitsproblem; *A. M. Brachjahu*, Der Einheitsbegriff und das Gebeit der Soziologie; *Otto Kröger*, Der richtig verstandene Reine Idealismus; *Paul Alsberg*, Zur Wesensbestimmung der Vernunft.

ZEITSCHRIFT FUR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE, XCIV, 5–6: *E. R. Jaensch*, Über Grundfragen der Farbenpsychologie; *Oskar Feyerabend*, Der innere Farbensinn der Jugendlicher in seiner Beziehung zu der angenaherten Farbenkonstanz der Sehdinge; *Heinz Werner*, Studien über Strukturgesetze. I, Über Strukturgesetze und deren Auswirkung in den sogenannten geometrisch-optischen Tauschungen. II, Über das Problem der motorischen Gestaltung; *Hans Henning*, Experimente an einem telekinetischen Medium; *Hans Henning*, Das Urbild; *Hans Henning*, Untersuchungen an einigen okkultistischen Medien; *Eugen Kagarow*, Über den Rythmus der russischen Prosa. XCV, 1–2: *Karl Groos*, Über wissenschaftliche Einfalle; *D. Katz* u. *H. H. Keller*, Das Zielen bei Tieren (Versuche mit Hühnern); *Th. Schjelderup-Ebbe*, Zur Sozialpsychologie der Vögel; *E. R. Jaensch*, Über Grundfragen der Farbenpsychologie. 3–4: *David Katz*, Neue Beiträge zu den Erscheinungsweisen der Farben. Luftlicht und Beleuchtungseindruck; *Hans Henning*, Ausgeprägte Anschauungsbilder der beiden Arten von Geschmackssinn; *Andor Juhasz*, Zur Analyse des musikalischen Wiederkenens; *Wilhelm Bardorff*, Untersuchungen über räumliche Angleichungserscheinungen.

Cornell Studies in Philosophy

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No. 3. The Philosophy of Friederich Nietzsche. By GRACE NEAL DOLSON, A.B., Ph.D.—pp. 110 [Out of print.]

No. 4. The Ethical Aspect of Lotze's Metaphysics. By VIDA F. MOORE, M.S., Ph.D.—pp. iv, 101. 75 cents net.

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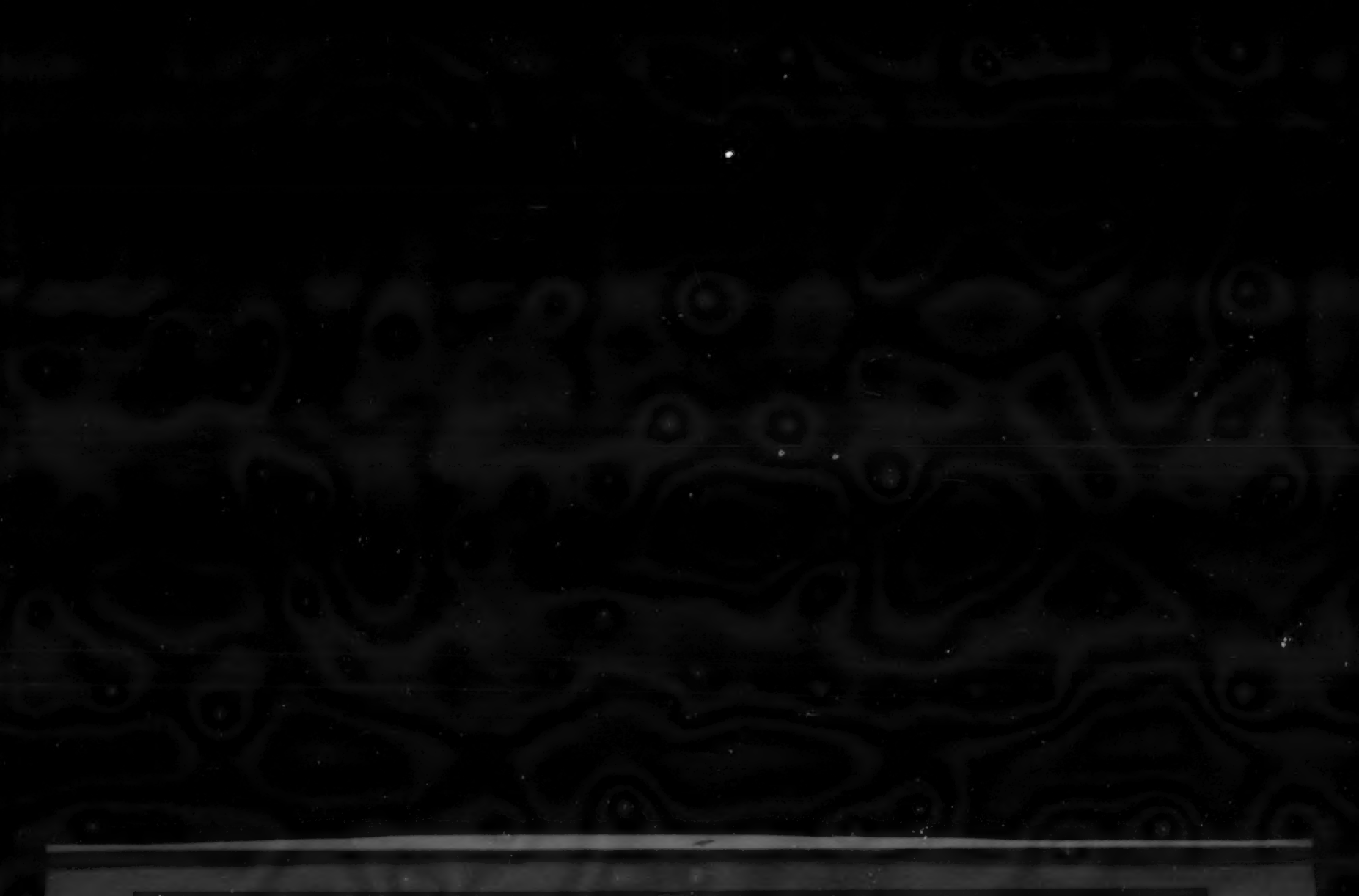
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